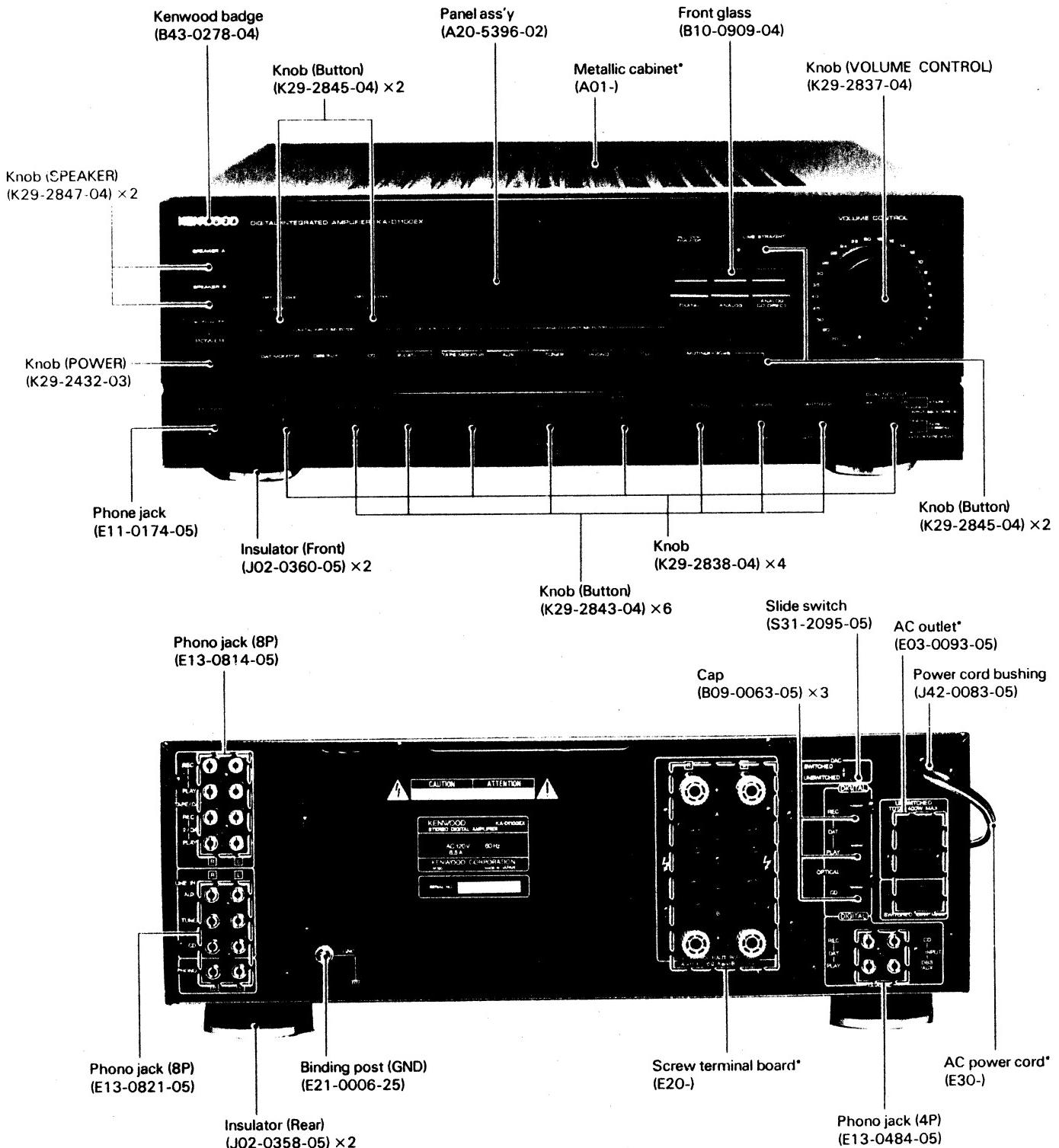


DIGITAL INTEGRATED AMPLIFIER
KA-D1100EX
 SERVICE MANUAL

KENWOOD

C 1988-1 PRINTED IN JAPAN
 B51-3420-00(B)1531



* Refer to Parts List on page 51.

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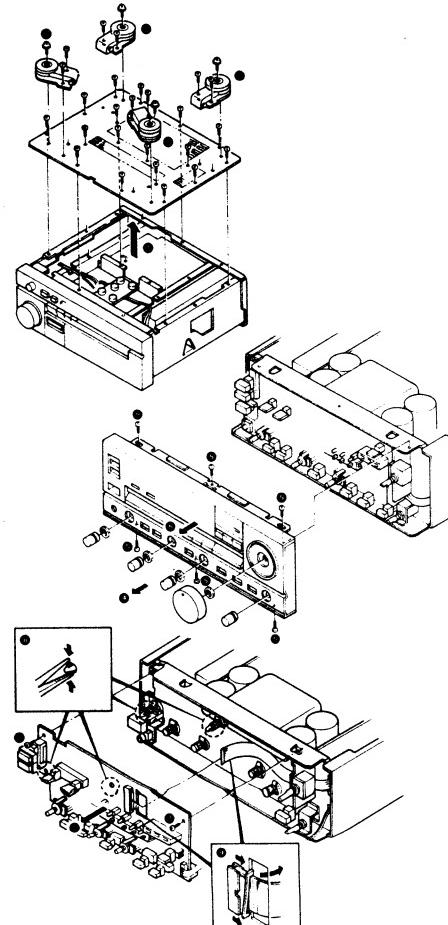
CAUTION

Never connect an audio connection cord between the digital input/output jack and a PHONO, CD, TUNER, AUX or TAPE line input/output jack.

DISASSEMBLY FOR REPAIR

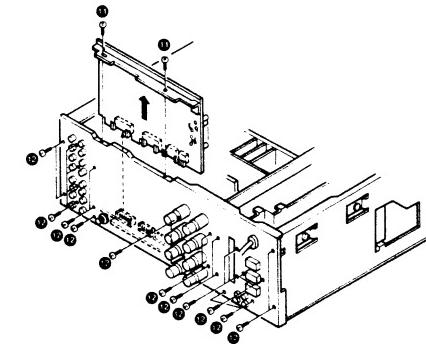
(Remove the metallic cabinet from the body beforehand.)

1. Remove the 17 screws holding the bottom plate, and remove the bottom plate (1).
2. When removing the two insulators (J02-0360-05) at the front side, remove the three screws for each (2).
3. When removing the two insulators (J02-0358-05) at the rear, remove the three screws for each (3).
4. Remove the knobs and nuts for the BASS, TREBLE, BALANCE, DUAL REC OUT and VOLUME VRs (4).
5. Remove the six screws (three at the top, and three at the bottom) retaining the panel ass'y to the frame (5).
6. Remove the panel ass'y in the direction of the arrow (6).

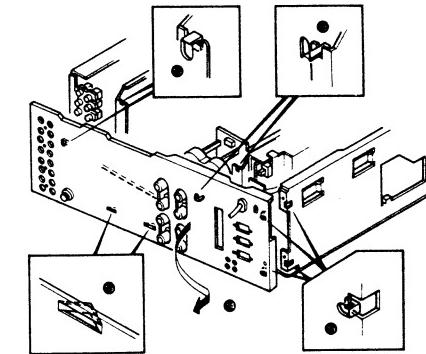


7. Remove the two screws retaining the Tone Unit (X11-2462-71) to the frame (7).
8. Remove the two unit holders retaining the Tone Unit (X11-) (8).
9. Remove the flexible cord from the CN1 of the Tone Unit (X11-) as shown in the figure (9).
10. Remove the Tone Unit (X11-) in the direction of the arrow (10).

11. Remove the two screws retaining the Power Amplifier Unit (X07-2392-71) to the rear panel (11), and pull out the Power Amplifier Unit from the Audio Unit (X09-2562-71) (A/3).
12. Remove the 23 screws retaining the rear panel (12).

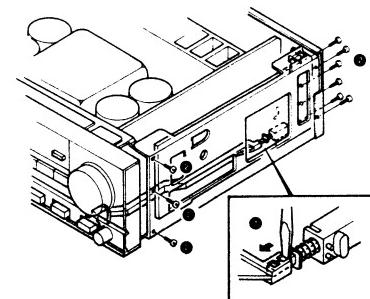


13. Taking cautious of the four lugs at the rear panel (13), remove the rear panel in the direction of the arrow (14).
14. When installing the rear panel to the body, carefully place the Audio Unit (X09-) (A/3) on the two lugs at the bottom of the rear panel (15).

Disassembling the Pre-Amplifier Unit,
Processor Unit and Digital I/O Unit

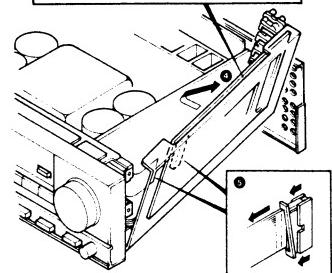
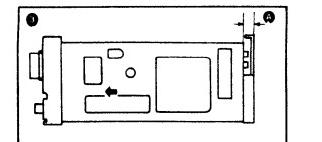
(Remove the metallic cabinet and bottom plate beforehand.)

1. After setting the CARTRIDGE switch to the "MM" position, remove the shaft as shown in the figure (1).
2. Remove the six screws retaining the rear panel, and the three screws retaining the side frames (2).

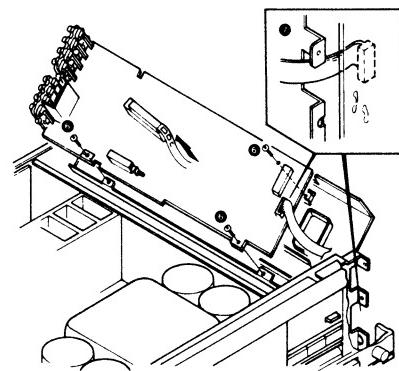


DISASSEMBLY FOR REPAIR

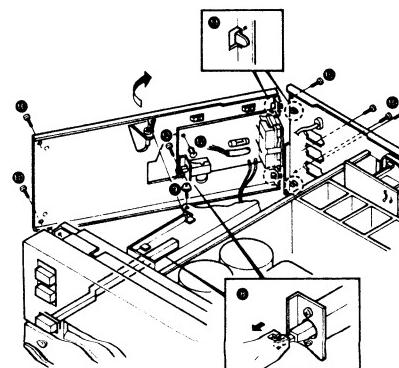
3. Slide the right side frame to that which the Pre-amplifier Unit (X08-222X-XX) (A/4) is attached so that there is a clearance at section **A** (3).
4. Lift the side frame diagonally in the direction of the arrow from the rear (4).
5. Remove the flexible cord from CN3 of the Pre-amplifier Unit (X08-) (A/4) (5).



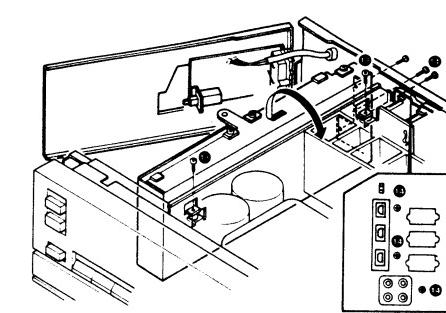
6. Remove the three screws retaining the Pre-amplifier Unit (X08-) (A/4) to the side frame (6), and remove it in the direction of the arrow.
7. When installing the Pre-amplifier Unit (X08-) (A/4), first pass the flexible cord through the notch of the front frame so as not to get in the way of the front frame (7).



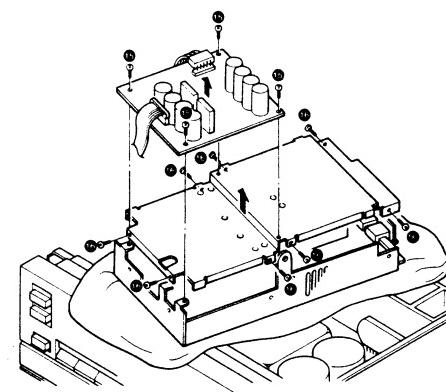
8. After confirming that the POWER switch is set to OFF, remove the shaft as shown in the figure (8).
9. Remove the screw retaining the left side frame (9).
10. Remove the four screws retaining the rear panel, and the two screws retaining the side frame (10).
11. Taking care of the two lugs on the rear panel (11), remove the side frame in the direction of the arrow.
12. Remove the push rivet and the screw retaining the Pre-amplifier Unit (X08-) (C/4) (12), to remove the Pre-amplifier Unit.



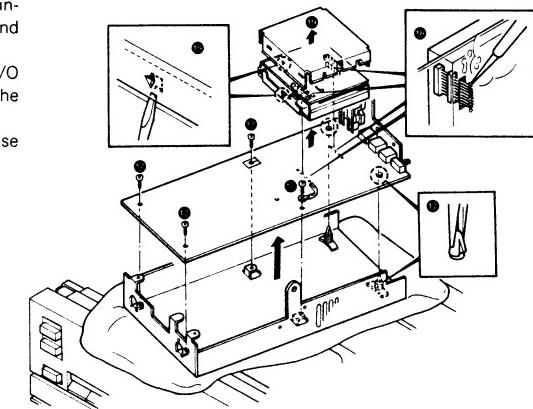
13. Remove the two screws retaining the DAC frame (13).
14. Remove the three screws retaining the DAC frame to the rear panel (14), and remove the Processor Unit (X32-1202-71) (A/2, B/2) with the frame in the direction of the arrow.



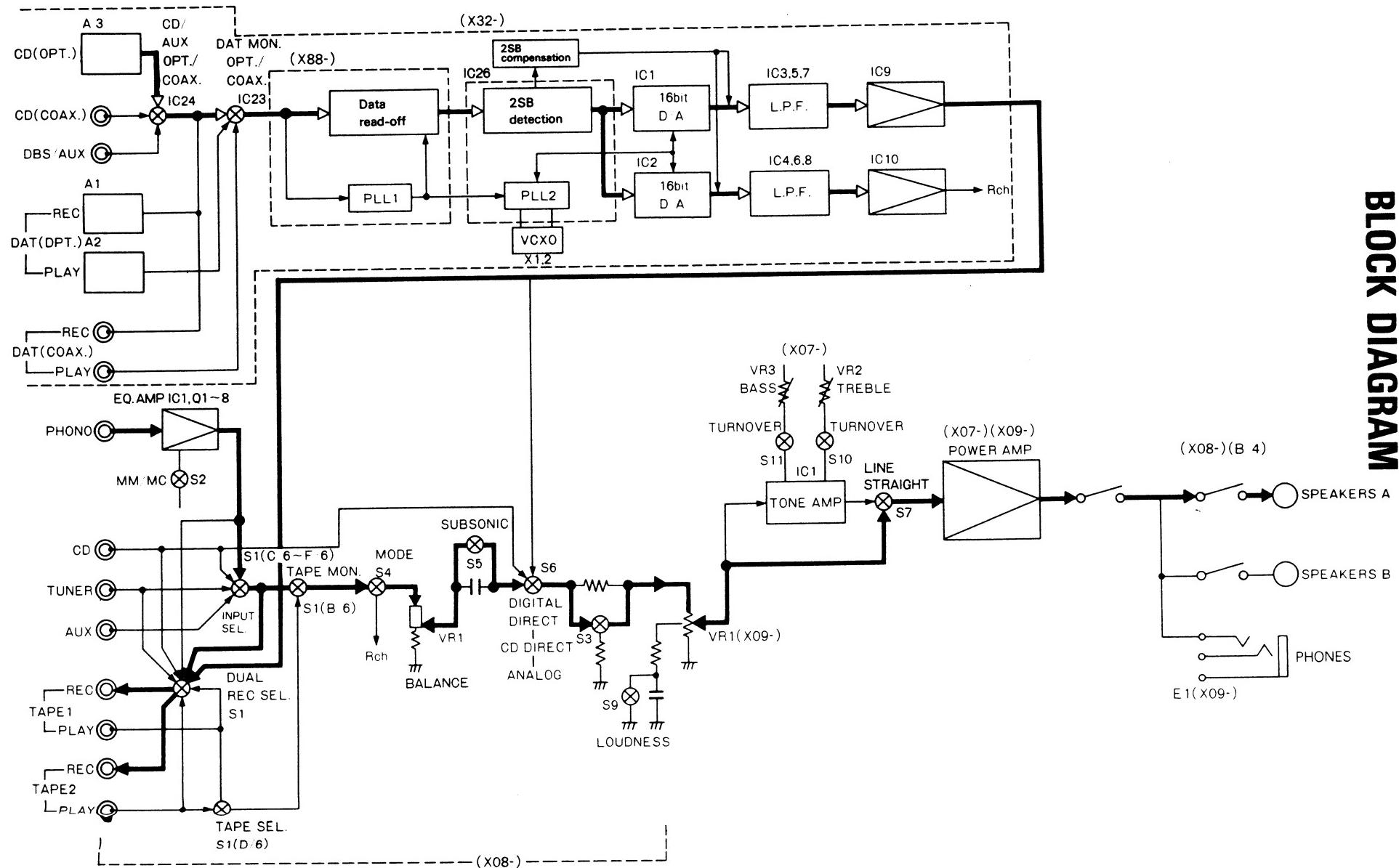
15. Spread a cloth on the top plate of the set, and place the Processor Unit (X32) (A/2, B/2) with the frame, then remove the four screws retaining the B/2 PC board to the frame (15) to remove the B/2 PC board.
16. Remove the eight screws retaining the shield plate (16) to remove it.



17. Remove the four screws and two unit holders retaining the Processor Unit (A/2) to the frame (17), and remove it in the direction of the arrow.
18. Unsolder the CN1 and CN2 holding the Digital I/O Unit (X88-1010-00) from the soldered surface of the Processor Unit (A/2) (18).
19. Remove the cover of the Digital I/O Unit (X88-) case by opening the lugs as shown in the figure (19).



BLOCK DIAGRAM



CIRCUIT DESCRIPTION

AUDIO UNIT (X09-256X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1~6	Constant voltage circuit	Constant voltage circuit for main class A stage
Q7, 8	Constant current circuit	Ripple elimination circuit inserted into the B line to the primary stage of class A.
Q9	For relay drive	
IC1, 2 (KAB02)	Power IC	
IC3, 4 (TA2030)	DLD switch IC	High/Low select circuit of DLD

TONE UNIT (X11-246X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Winking circuit	The LED lights when the power indication and the set operates correctly, and blinks until the amplifier is operable (for about 5 seconds) after power is turned ON, or when the protection circuit functions because of the abnormal operation occurs in the power amplifier.
Q3	LED ON/OFF circuit for digital indication	
Q4	Lamp blinking prevention circuit	Constant voltage circuit for preventing the lamp from blinking when the power is output.
IC1 (NJM2041D-D)	IC for tone circuit	1/2 for L-channel, 2/2 for R-channel.

PROCESSOR UNIT (X32-1202-71)

Component	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Diode	
Q3, 4	Crystal oscillator	
Q5	LED driver	
Q6	Constant voltage power supply	
Q7	Constant voltage power supply	
Q8	Constant voltage power supply	
Q10~13	Relay control	
IC1, 2 (PCM56P-K)	For D/A conversion	
IC3, 4 (NJM5532D-D)	I-V conversion, addition for compensation of 2nd significant bit	Compatible with NE5532P, NJM5532D.
IC5~8 (NJM5532D-D)	Low pass filter	Compatible with NE5532P, NJM5532D.
IC9, 10 (NJM5532D-D)	Output amplifier	Compatible with NE5532P, NJM5532D.
IC21 (TC74HCU04F)	Amplifier	
IC22 (TC74HCU04F)	Inverter	
IC23, 24 (TC74HC153F)	Digital input select	
IC25 (SM5804D-T)	Digital filter	
IC26 (TC17G005AF-0053)	Twin quartz PLL control circuit Phase comparator for VCXO	
IC27 (M5223P)	Loop filter for VCXO	
IC28 (M5F78M05L)	Constant voltage power supply	Compatible with AN7805F.
IC29 (M5F79M05L)	Constant voltage power supply	Compatible with AN7905F.

CIRCUIT DESCRIPTION

Description of Components

POWER AMPLIFIER UNIT (X07-239X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Class A primary stage differential amplifier circuit	
Q3~6	Class A primary stage cascode circuit	
Q7, 8	Constant current circuit	Constant current circuit for class A primary stage differential amplifier circuit.
Q9~12	Class A secondary stage differential amplifier circuit	
Q13, 14	Class A cascode circuit	
Q15~18	Class A third stage differential amplifier circuit	
Q19, 20	Class A current mirror circuit	
Q21, 22	Class A cascode circuit	
Q23~30	Cascode bootstrap circuit*	Consisting the VIG circuit. Q23~26 are constant current circuit, and Q27~30 are base ground.
Q31~34	For pre-driver	
Q35~38	For driver	
Q39~42	Cascode bootstrap circuit	Consisting the VIG circuit. Q39~42 are buffers.
Q43~46	Current limiter	Limits the current supplied to the final transistor when overload driven.
Q71	Constant voltage circuit	Transmits the operation signal of the current limiter Q43 and 44 to the protection IC (IC1).
IC1 (μ PC1237HA)	Protection IC	

PRE-AMPLIFIER UNIT (X08-222X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1~4	EQ circuit primary stage differential amplifier	
Q5~8	EQ circuit primary stage cascode circuit	
Q9, 10	EQ circuit primary stage constant current circuit	
Q11, 12	For stabilized power supply regulator	
Q13	Deck oscillation prevention circuit	Oscillation prevention circuit against a loop when the deck is connected.
Q14, 15	For relay drive	
IC1 (NJM5532D)	Op amp for EQ circuit	
IC2 (M5218P)	Op amp for stabilized power supply for EQ	

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CIRCUIT DESCRIPTION

PROCESSOR UNIT (X32-1202-71)

IC30 (M5F78M06L)	Constant voltage power supply	
IC31 (M5F79M06L)	Constant voltage power supply	
IC32 (P005R04)	Constant voltage power supply	
IC33 (M5220P)	Error amplifier for constant voltage power supply	Compatible with NJM4560D-N.
IC34 (TC74HCU04F)	Amplifier	
IC35 (M51951ASL)	For resetting	

DIGITAL I/O UNIT (X88-1010-00)

Component	Use/Function	Operation/Condition/Interchangeability
IC1 (TC17G014AF-0073)	Digital audio data decoding	
IC2 (SN74LS624N)	V.C.O. (Voltage controlled oscillator)	
IC3 (M5223P)	Loop filter for PLL	
IC4 (TC74HCU04F)	Inverter	
IC5 (TC74HC123F)	Monostable multi vibrator	

DUAL REC OUT Switch and INPUT SELECTOR

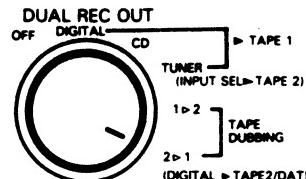
Operations

On this amplifier, the REC 1 jacks and the REC 2 jacks are designed to have different tape recording functions.

In principle, the REC 2 jacks output the signal from the source selected by the INPUT SELECTOR switches, while the REC 1 jacks output the signal from the source selected by the DUAL REC OUT switch. The relationship between the setting of these switches and the output signal is as shown in the following chart.

DUAL REC OUT SW position	TAPE REC jacks	REC 1	REC 2
OFF	—	—	—
DIGITAL ▶ TAPE 1 (INPUT SEL ▶ TAPE 2)	DIGITAL SOURCE	ANALOG SOURCE	
CD ▶ TAPE 1 (INPUT SEL ▶ TAPE 2)	CD	ANALOG SOURCE	
TUNER ▶ TAPE 1 (INPUT SEL ▶ TAPE 2)	TUNER	ANALOG SOURCE	
1 ▶ 2 TAPE DUBBING	ANALOG SOURCE	TAPE 1	
2 ▶ 1 TAPE DUBBING (DIGITAL ▶ TAPE 2/DAT)	TAPE 2	DIGITAL SOURCE	

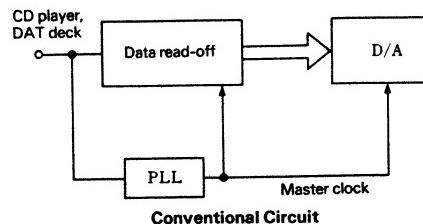
Note:
In this chart, "source" shows the source signal selected by the INPUT SELECTOR switches.



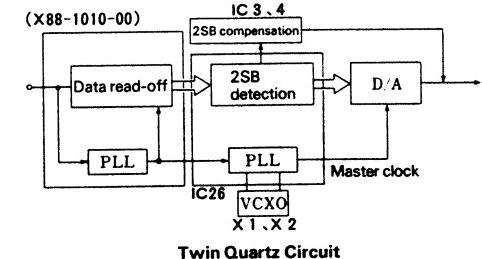
CIRCUIT DESCRIPTION

Twin Quartz PLL (X32-1202-71)

In the conventional circuits, as shown in the figure below, the master clock frequency is generated by PLL from the input digital signal, and the read-off of the data and transmission to the D/A converter are controlled using this clock frequency as a reference. However, improving the accuracy of the clock frequency is impossible if the data read-off speed is raised. A compromise is required.



possible since the PLL at the secondary stage is structured by the excessively stabilized crystal.



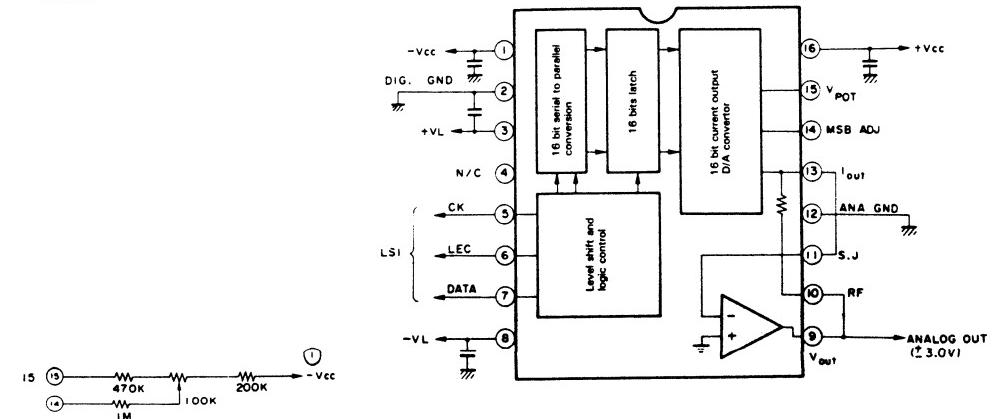
For this new circuit, the exclusive ICs have developed so that two PLLs for the primary stage of data read-off section and for the secondary stage PLL section are structured in IC separately and effectively.

Moreover, ICs consisting of the crystal PLL at the secondary stage have the function to compensate the MSB (most significant bit) and 2SB (2nd significant bit) with a timing of D/A conversion to eliminate the non-linear distortion of the D/A converter. This made a D/A conversion of extreme linearity possible.

IC1, 2 (X32-1202-71): PCM56P-K

Operation Outline of D/A Unit

- The D/A converter IC1, 2: PCM56P-K is in the same rank as that used in the KA-3300D. Pin allocation, block diagram and timing diagram are shown in the figure below.



Note: The MSB error and differential linearity error with bipolar zero can be zero-adjusted by the external circuit shown below.

KA-D1100EX KA-D1100EX

CIRCUIT DESCRIPTION

Pin No.	Pin name	Function	Pin No.	Pin Name	Function
1	-Vcc	Analog negative power supply	9	V _{OUT}	Voltage output
2	DIG GND	Digital grounding	10	RF	Feedback resistance
3	+VL	Logic positive power supply	11	S.J	Summing junction (op amp input)
4	NC	No connection	12	ANA GND	Analog grounding
5	CK	Clock input	13	I _{OUT}	Current output
6	LEC	Latch enable control input	14	MSB ADJ	MSB adjustment pin
7	DATA	Data input	15	VPOT	Potentiometer pin
8	-VL	Logic negative power supply	16	+Vcc	Analog positive power supply

Difference of Rank between PCM56P, PCM56P-J and PCM56P-K

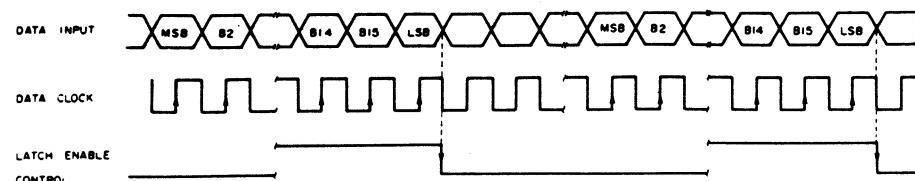
	PCM56P		PCM56P-J		PCM56P-K		Unit
	MIN	TYP	MIN	TYP	MAX		
Power voltage	±Vcc, ±VL (Note 1)		±4.75	±12.0	±13.2	V	
Non-load supply current (Note 2)	+Vcc (Vcc=+5.0V) -Vcc (Vcc=-5.0V) +Vcc (Vcc=+12.0V) -Vcc (Vcc=-12.0V)			10 -25 12 -27	17 -35	mA	
Analog output (Bipolar mode)						V	
Voltage output	Voltage range Output current Output impedance	±2.0		±3.0		mA	
Current output	Current range Output impedance Output short-circuit period			0.1 ±1.0 (±30%) 1.2		mA K	
Total harmonic distortion	TYP	MAX	TYP	MAX	TYP	MAX	%
Vo=FS at f=991Hz	0.002	0.008	0.002	0.004	•	0.0025	
Vo=-20dB at f=991Hz	0.02	0.04	•	•	•	0.02	%
Vo=-60dB at f=991Hz	1.8	4.0	•	•	•	2.0	%
			Infinite to common mode				

Note 1: Since the -Vcc is sub-straight connected, the potential of -Vcc should be set at equal to or lower than -VL.

Note 2: Shows the value when ±Vcc±VL (logic) is commonly connected.

Note 3: (•) shows the same rank as that at the left.

Timing Diagram



- The data format is 2's complement, MSB-first.
- Data is latched in the shift register at the rise of data clock.
- Latch enable control is performed by the frequency twice the L/R clock, and the LSB corresponds to its rise.
It must be synchronized with the fall of data clock.

IC23, 24 (X32-1202-71): TC74HC153F

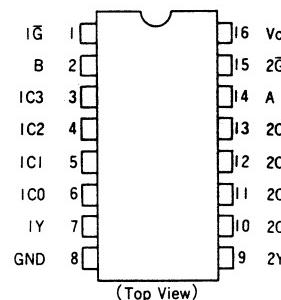
4 Channel MPX

Absolute maximum rating

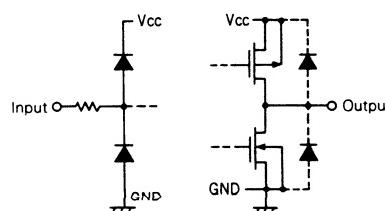
Item	Symbol	Specifications	Unit
Power voltage	V _{CC}	0.5~7	V
Input voltage	V _{IN}	-0.5~V _{CC} +0.5	V
Output voltage	V _{OUT}	-0.5~V _{CC} +0.5	V
Input protection diode current	I _{IK}	±20	mA
Output parasitic diode current	I _{OK}	±20	mA
Output current	I _{OUT}	±25	mA
Power supply/GND current	I _{CC}	±50	mA
Allowable loss	P _O	500(DIP)/180(MFP)	mW
Storage temperature	T _{STG}	-65~150	°C
Leading temperature	T _L	300	°C

- T_a=500 mW between -40°C and +65°C. In the range T_a=65°C ~ 85°C, derating is required to 300 mW at -10 mW/°C.

Pin connection

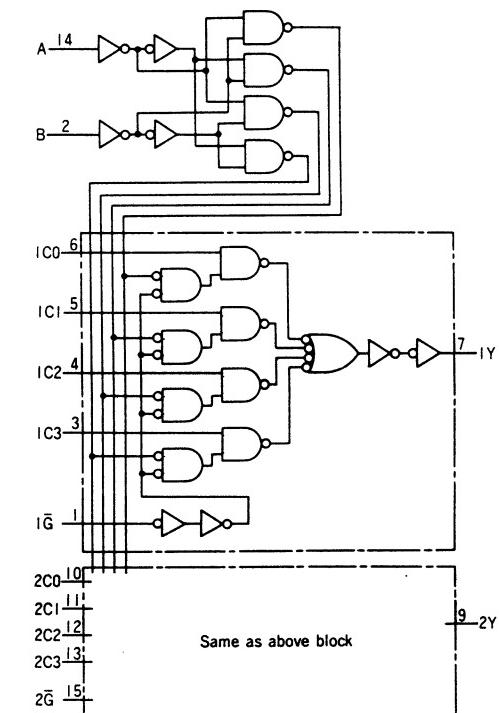


Input protection circuit, output equivalent circuit



CIRCUIT DESCRIPTION

Logic diagram



KA-D1100EX

CIRCUIT DESCRIPTION

Truth table

SELECT INPUTS		DATA INPUTS			STROBE	OUTPUT Y	
B	A	C0	C1	C2	C3	\bar{G}	HC153
X	X	X	X	X	X	H	L
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

X: Don't care

Operation condition

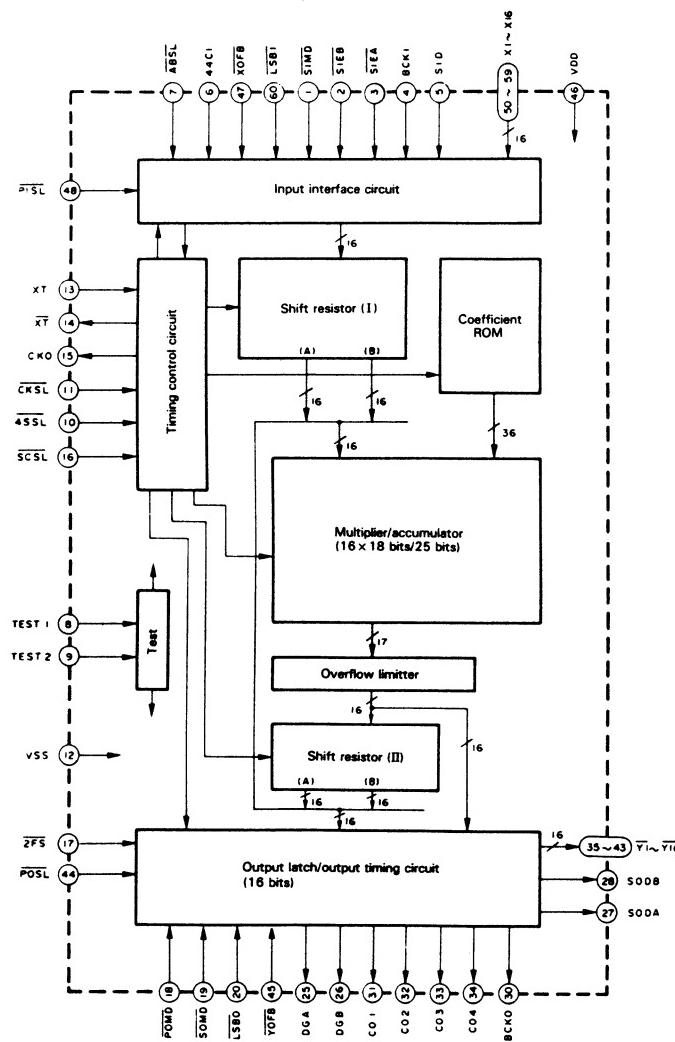
Item	Symbol	Specifications	Unit
Power voltage	Vcc	2~6	V
Input voltage	Vin	0~Vcc	V
Output voltage	Vout	0~Vcc	V
Operable temperature	TOPR	-40~85	°C
Input up/down period	tr, tf	0~1000 (Vcc=2.0V) 0~500 (Vcc=4.5V) 0~400 (Vcc=6.0V)	ns

CIRCUIT DESCRIPTION

IC25 (X32-1202-71):SM5804D-T

Digital Filter LSI

Block Diagram



Explanation of Pins

With this LSI, the switching between the serial and parallel inputs/outputs is performed by the **PISL** and **POS** pins. Some

of the functions of pins **X1** to **X16** and **Y1** to **Y16** may be changed by this switching.

All the terminals of this unit function with **PISL** = H.

Note: Ip designates an input jack with a pull-up resistor.

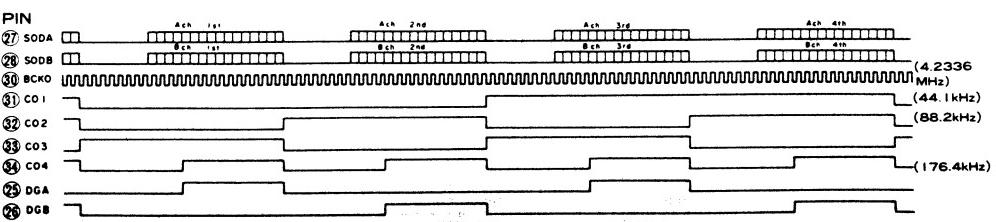
Pin No.	PISL = H		PISL = L		Function
	Pin Name	I/O	Pin Name	I/O	
1	SIMD	ip			Serial input mode switching.
			X5	ip	Parallel data input (Bit 5).
2	SIEB	ip			B CH serial input enable.
			X4	ip	Parallel data input (Bit 4).
3	SIEA	ip			A CH serial input enable.
			X3	ip	Parallel data input (Bit 3).
4	BCKI	ip			Serial input bit clock input.
			X2	ip	Parallel data input (Bit 2).
5	SID	ip			Serial input data.
			X1	ip	Parallel data input (LSB).
6	44Cl	ip		ip	44.1 kHz sync clock input.
7	ABSL	ip		ip	ABSL = H—44 Cl clock, H/L = A CH/B CH. ABSL = L—44 Cl clock, H/L = B CH/A CH.
8	TEST 1	ip		ip	Test input 1 (Normally Open).
9	TEST 2	ip		ip	Test input 2 (Normally Open).
10	4SSL	ip		ip	Normally 4SSL = H or Open. 4SSL = L when input is 16.9344 MHz or 17.2872 MHz.
11	CKSL	ip		ip	CKSL = H—External clock input. CKSL = L—X'tal oscillation.
12	Vss				GND power supply pin (0 V).
13	XT	i		i	CKSL = H—Clock input. CKSL = L—X'tal oscillation input.
14	XT	o		o	CKSL = H—(Open). CKSL = L—X'tal oscillation output.
15	CKO	o		o	Clock output.
16	SCSL	ip		ip	System clock 96 fs— SCSL = H. System clock 98 fs— SCSL = L.
17	ZFS	ip		ip	Open.
18	POMD	ip		ip	POMD = H—Normal parallel output mode. POMD = L—In-phase parallel output mode.
19	SOMD	ip		ip	SOMD = L with serial output.
20	LSBO	ip		ip	LSBO = H—MSB-first serial output. LSBO = L—LSB-first serial output.
21	(NC)				(NC)
22	(NC)				(NC)
23	(NC)				(NC)
24	(NC)				(NC)
25	DGA	o		o	A CH deglitch control output.
26	DDA	o		o	B CH deglitch control output.
27	SODA	o			A CH serial data output.
			YT	o	Parallel output (inverted, LSB).

CIRCUIT DESCRIPTION

Pin No.	PISL = H		PISL = L		Function
	Pin Name	I/O	Pin Name	I/O	
28	SODB	O			B CH serial data output.
			Y2	O	Parallel output (inverted, Bit 2).
29	(NC)				Internally short-circuited to Vdd. Not to be connected externally.
	BCKO	O			Serial output bit clock output.
30			Y3	O	Parallel output (inverted, Bit 3).
	CO1	O			Serial output control clock 1.
31			Y4	O	Parallel output (inverted, Bit 4).
	CO2	O			Serial output control clock 2.
32			Y5	O	Parallel output (inverted, Bit 5).
	CO3	O			Serial output control clock 3.
33			Y6	O	Parallel output (inverted, Bit 6).
	CO4	O			Serial output control clock 4.
34			Y7	O	Parallel output (inverted, Bit 7).
	(NC)	Hz			(NC)
35			Y8	O	Parallel output (inverted, Bit 8).
	(NC)	Hz			(NC)
36			Y9	O	Parallel output (inverted, Bit 9).
	(NC)	Hz			(NC)
37			Y10	O	Parallel output (inverted, Bit 10).
	(NC)	Hz			(NC)
38			Y11	O	Parallel output (inverted, Bit 11).
	(NC)	Hz			(NC)
39			Y12	O	Parallel output (inverted, Bit 12).
	(NC)	Hz			(NC)
40			Y13	O	Parallel output (inverted, Bit 13).
	(NC)	Hz			(NC)
41			Y14	O	Parallel output (inverted, Bit 14).
	(NC)	Hz			(NC)
42			Y15	O	Parallel output (inverted, Bit 15).
	(NC)	Hz			(NC)
43			Y16	O	Parallel output (inverted, MSB).
	(NC)	Hz			(NC)
44	POS1	ip		ip	POS1 = H—Serial output system. POS1 = L—Parallel output system.
45	YOFB	ip		ip	YOFB = H—2's complement display output. YOFB = L—Offset binary display output.
46	Vdd				+ ve power supply pin (5 V).
47	XOFB	ip		ip	XOFB = H—2's complement display input. XOFB = L—Offset binary display input.
48	PISL	ip		ip	PISL = H—Serial input system. PISL = L—Parallel input system.
49	(NC)				(NC)

CIRCUIT DESCRIPTION

Pin No.	PISL = H		PISL = L		Function
	Pin Name	I/O	Pin Name	I/O	
50	(NC)	ip			(NC)
			X16	ip	Parallel data input (MSB).
51	(NC)	ip			(NC)
			X15	ip	Parallel data input (Bit 15).
52	(NC)	ip			(NC)
			X14	ip	Parallel data input (Bit 14).
53	(NC)	ip			(NC)
			X13	ip	Parallel data input (Bit 13).
54	(NC)	ip			(NC)
			X12	ip	Parallel data input (Bit 12).
55	(NC)	ip			(NC)
			X11	ip	Parallel data input (Bit 11).
56	(NC)	ip			(NC)
			X10	ip	Parallel data input (Bit 10).
57	(NC)	ip			(NC)
			X9	ip	Parallel data input (Bit 9).
58	(NC)	ip			(NC)
			X8	ip	Parallel data input (Bit 8).
59	(NC)	ip			(NC)
			X7	ip	Parallel data input (Bit 7).
60	LSBI	ip			LSBI = H—MSB-first serial input. LSBI = L—LSB-first serial input.
			X6	ip	Parallel data input (Bit 6).

Serial Output Timing ($\overline{SOMD} = L$, $\overline{SCSL} = H$, system clock = 4.2336 MHz)

CIRCUIT DESCRIPTION

IC26 (X32-1202-71): TC17G005AF-0053

Twin Quartz PLL Control Circuit
Phase Comparator for VCXO

Maximum rating

(V_{SS}=0V)

Item	Symbol	Specifications	Unit
Power voltage	VDD	V _{SS} -0.3~V _{SS} +7.0	V
Input voltage	V _{IN}	V _{SS} -0.3~V _{DD} +0.3	V
Input current	I _{IN}	±20	mA
Storage temperature	T _{stg}	-40~125	°C

Operation condition

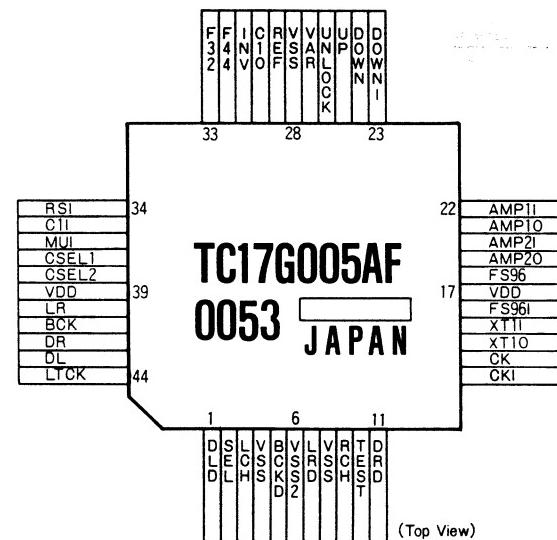
Item	Symbol	Specifications	Unit
Power voltage	VDD	4.75~5.25	V
Operable temperature	T _a	0~70	°C

Electrical characteristics under permissible operating condition

Symbol	Item	Buffer Name	Condition	Min	Typ	Max	Unit
VIH	High-level input voltage	SMT1	—	4.0	—	—	V
		SMT1U	—	4.0	—	—	V
		SMT1D	—	4.0	—	—	V
		IBUF	—	3.5	—	—	V
		INPAD(IBUF)	—	3.5	—	—	V
VIL	Low-level input voltage	SMT1	—	—	—	1.0	V
		SMT1U	—	—	—	1.0	V
		SMT1D	—	—	—	1.0	V
		IBUF	—	—	—	1.5	V
		INPAD(IBUF)	—	—	—	1.5	V
VOH	High-level output voltage	B1	I _{OH} =-4.0 (mA)	24	—	—	V
		B18	I _{OH} =-2.0 (mA)	24	—	—	V
		BT57B	I _{OH} =-4.0 (mA)	24	—	—	V
VOL	Low-level output voltage	B1	I _{OL} =4.0 (mA)	—	—	0.4	V
		B18	I _{OL} =2.0 (mA)	—	—	0.4	V
		BT57B	I _{OL} =4.0 (mA)	—	—	0.4	V
IIH	High-level input current	SMT1	V _{IN} =V _{DD}	—	—	10	μA
		SMT1U	V _{IN} =V _{DD}	—	—	10	μA
		SMT1D	V _{IN} =V _{DD}	—	—	200	μA
		IBUF	V _{IN} =V _{DD}	—	—	10	μA
		INPAD(IBUF)	V _{IN} =V _{DD}	—	—	10	μA
IIL	Low-level input current	SMT1	V _{IN} =V _{SS}	-10	—	—	μA
		SMT1U	V _{IN} =V _{SS}	-200	—	—	μA
		SMT1D	V _{IN} =V _{SS}	-10	—	—	μA
		IBUF	V _{IN} =V _{SS}	-10	—	—	μA
		INPAD(IBUF)	V _{IN} =V _{SS}	-10	—	—	μA
IOZ	Output leakage current	—	V _{OUT} =V _{DD} , V _{SS}	-10	—	10	μA
IDD(S)	Static consuming current	—	V _{IN} =V _{DD} , V _{SS}	—	15	—	μA
IDD(D)	Consuming current	—	—	—	20	—	mA

CIRCUIT DESCRIPTION

Terminal connection diagram



(Top View)

Terminal description

Pin No.	Pin Name	Buffer Name	I/O	Pin No.	Pin Name	Buffer Name	I/O
1	DLD	B18	O	23	DOWN I	B1	O
2	SEL	SMT1	I	24	DOWN	B1	O
3	LCH	B18	O	25	UP	B1	O
4	VSS	—	—	26	UNLOCK	SMT1	—
5	BCKD	B18	O	27	VAR	B18	O
6	VSS2	—	—	28	VSS	—	—
7	LRD	B18	O	29	REF	SMT1	—
8	VSS	—	—	30	C10	B18	O
9	RCH	B18	O	31	INV	SMT1	—
10	TEST	SMT1D	I	32	F44	SMT1	—
11	DRD	B18	O	33	F32	SMT1	—
12	CKI	B1	O	34	RSI	SMT1U	—
13	CK	B1	O	35	C11	SMT1	—
14	XT10	BT57B	O	36	MUI	SMT1U	—
15	XT11	INPAD	I	37	CSEL1	SMT1	—
16	FS96I	B18	O	38	CSEL2	SMT1	—
17	VDD	—	—	39	VDD	—	—
18	FS96	B18	O	40	LR	SMT1	—
19	AMP20	BT57B	O	41	BCK	SMT1	—
20	AMP21	IBUF	I	42	DR	SMT1	—
21	AMP10	BT57B	O	43	DL	SMT1	—
22	AMP11	IBUF	I	44	LTC	SMT1	—

CIRCUIT DESCRIPTION

IC1 (X88-1010-00): TC17G014AF-0073
Digital Audio Data Decoding IC

Maximum rating (VSS=0V)

Item	Symbol	Specifications	Unit
Power voltage	VDD	VSS~0.3~VSS+7.0	V
Input voltage	VIN	VSS~0.3~VDD+0.3	V
Input current	IIN	±20	mA
Storage temperature	T _{STG}	-40~125	°C

Operation condition

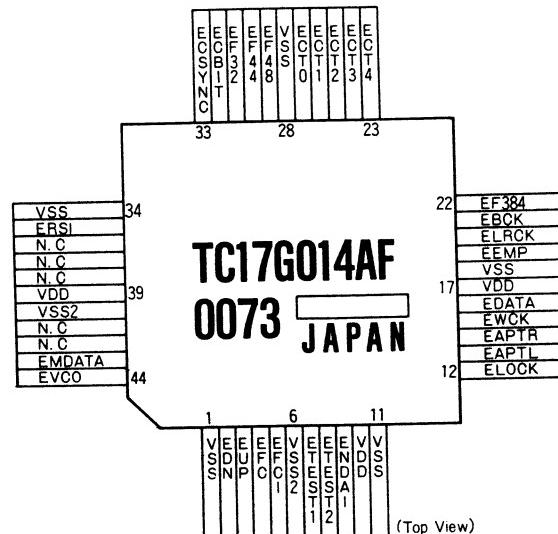
Item	Symbol	Specifications	Unit
Power voltage	VDD	4.75~5.25	V
Operable temperature	T _A	0~70	°C

Electrical characteristics under permissible operating condition

Symbol	Item	Buffer Name	Condition	Min	Typ	Max	Unit
VIH	High-level input voltage	SMT1	—	4.0	—	—	V
		SMT1U	—	4.0	—	—	V
		SMT1D	—	4.0	—	—	V
VIL	Low-level input voltage	SMT1	—	—	—	1.0	V
		SMT1U	—	—	—	1.0	V
		SMT1D	—	—	—	1.0	V
VOH	High-level output voltage	B1	IOH=-4.0 (mA)	2.4	—	—	V
		BTS1	IOH=-4.0 (mA)	2.4	—	—	V
		BTS18	IOH=-2.0 (mA)	2.4	—	—	V
VOL	Low-level output voltage	B1	IOL=4.0 (mA)	—	—	0.4	V
		BTS1	IOL=4.0 (mA)	—	—	0.4	V
		BTS18	IOL=2.0 (mA)	—	—	0.4	V
IIH	High-level input current	SMT1	VIN=VDD	-10	—	10	μA
		SMT1U	VIN=VDD	-10	—	10	μA
		SMT1D	VIN=VDD	10	—	200	μA
IIL	Low-level input current	SMT1	VIN=VSS	-10	—	10	μA
		SMT1U	VIN=VSS	-200	—	-10	μA
		SMT1D	VIN=VSS	-10	—	10	μA
IOZ	Output leakage current	—	VOUT=VDD, VSS	-10	—	10	μA
IDD(S)	Static consuming current	—	VIN=VDD, VSS	—	35	—	μA
IDD(D)	Consuming current	—	—	—	20	—	mA

CIRCUIT DESCRIPTION

Terminal connection diagram



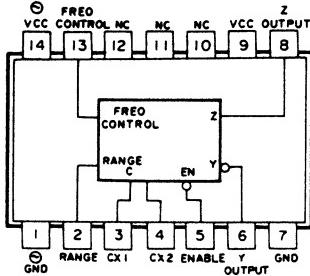
Terminal description

Pin No.	Pin Name	Buffer Name	I/O	Pin No.	Pin Name	Buffer Name	I/O
1	VSS	—	—	23	ECT4	B1	O
2	EDN	BTS1	O	24	ECT3	B1	O
3	EUP	BTS1	O	25	ECT2	B18	O
4	EFC	BTS1	O	26	ECT1	B18	O
5	EFCI	BTS1	O	27	ECT0	B18	O
6	VSS2	—	—	28	VSS	—	—
7	ETEST1	SMT1D	I	29	EF48	B18	O
8	ETEST2	SMT1D	I	30	EF44	B18	O
9	END1	SMT1D	I	31	EC32	B18	O
10	VDD	—	—	32	ECBIT	B18	O
11	VSS	—	—	33	ECSYNC	B18	O
12	ELOCK	B1	O	34	VSS	—	—
13	EAPTL	BTS18	O	35	ERSI	SMT1U	I
14	EAPTR	BTS18	O	36	N.C	—	—
15	EWCK	BTS18	O	37	N.C	—	—
16	EDATA	BTS18	O	38	N.C	—	—
17	VDD	—	—	39	VDD	—	—
18	VSS	—	—	40	VSS2	—	—
19	EEMP	B1	O	41	N.C	—	—
20	ELRK	BTS18	O	42	N.C	—	—
21	EBCK	BTS18	O	43	EMDATA	SMT1	I
22	EF384	B1	O	44	EVCO	SMT1	I

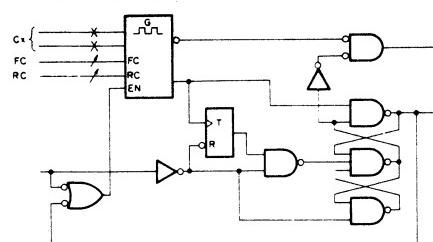
CIRCUIT DESCRIPTION

IC2 (X88-1010-00): SN74LS624N
Voltage Controlled Oscillator

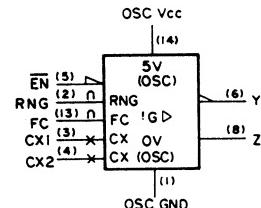
Terminal connection diagram and block diagram



Logic diagram



Logic symbol diagram



A1 (X32-1202-71): W02-0784-05
Optical Transmission Module

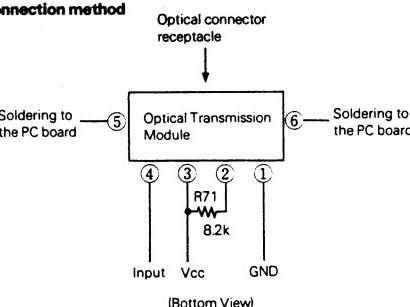
Outside view



Terminal connection

Pin No.	Connection
1	GND
2	Current regulation resistor of LED
3	Vcc
4	Input
5	NC
6	NC

Connection method



A2, 3 (X32-1202-71): W02-0774-05
Optical Reception Module

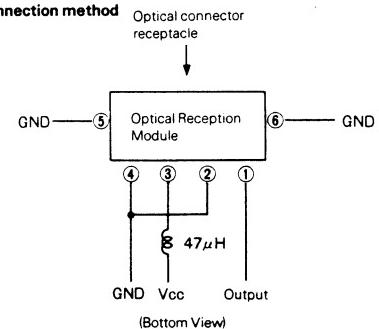
Outside view



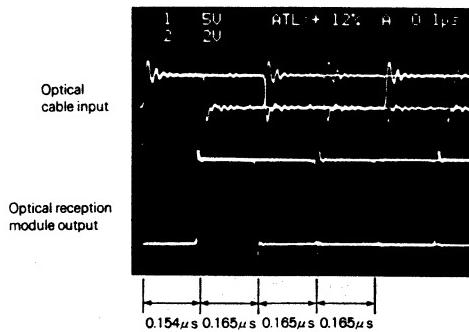
Terminal connection

Pin No.	Connection
1	Output
2	GND
3	Vcc
4	GND
5	Case
6	Case

Connection method

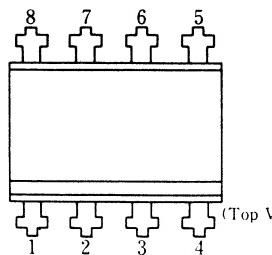


Optical reception module output waveform



PH1 (X32-1202-71): T95-0101-05
Photo Coupler

Outside view



Connection of electrode

1.3.	Anode (LED)
2.4.	Cathode (LED)
5.7.	Emitter (Photo transistor)
6.8.	Collector (Photo transistor)

CIRCUIT DESCRIPTION

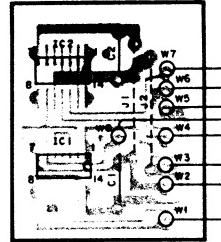
Products incorporating the small auxiliary unit

The units of this model produced in the period from October to December 1987 incorporate the small Sub-Circuit Unit (X13-6000-00) attached to the Processor Unit (X32-1202-71). When servicing these units, please refer to the following PC board diagram, circuit diagram and parts list.

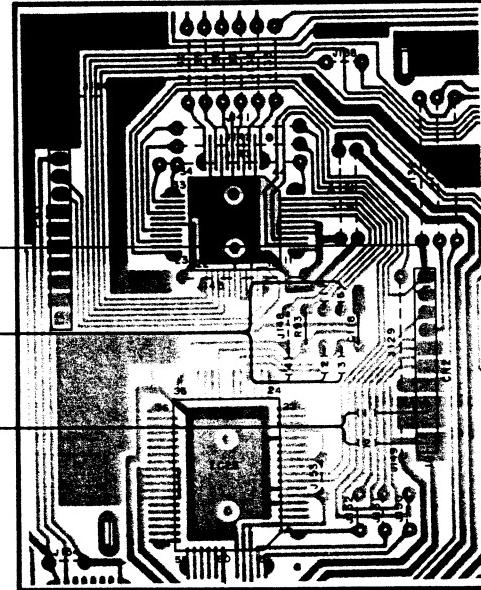
With the units to be produced from January and on (S/No. 80100001 and after), the function of the small Sub-Circuit Unit will be accommodated in IC26 on the (X32-). Therefore, IC26 with current parts No. TC17G005AF-0048 will not be compatible with that with new parts No. TC17G005AF-0053. Note that the PC board diagrams, circuit diagrams and parts lists in this manual have been produced based on the units to be produced from January and on.

PC BOARD

Sub-Circuit Unit (X13-6000-00)



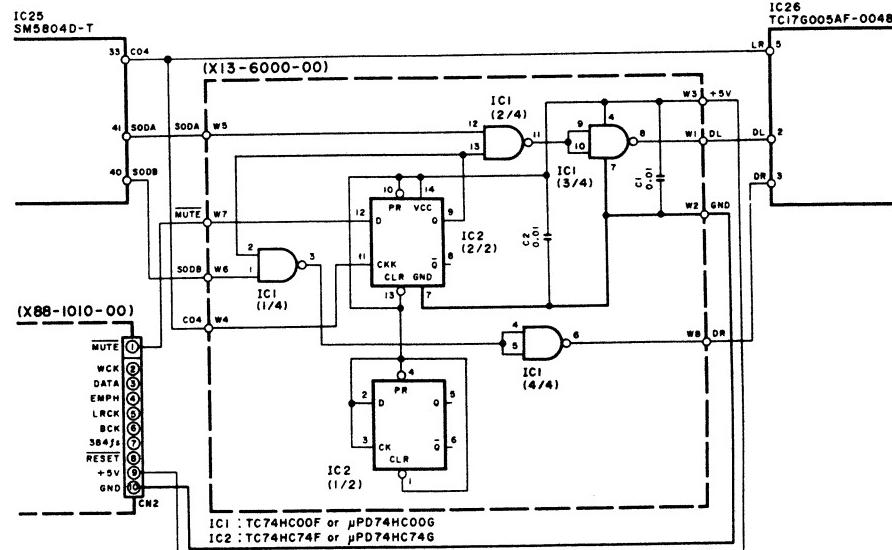
Part of Processor Unit (X32-1202-71)(A/2)



KA-D1100EX

CIRCUIT DESCRIPTION

SCHEMATIC DIAGRAM

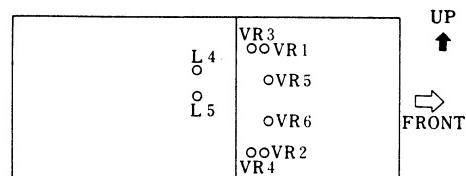
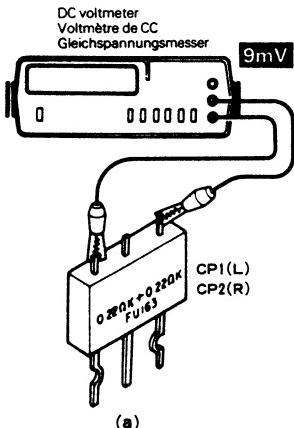


PARTS LIST

Ref. No.	Address	New Parts	Parts No.	Description	Desti- nation	Re- marks
Sub-Circuit Unit (X13-6000-00)						
C1,2			C91-0769-05	CERAMIC 0.01 μ F M		
IC1			TC74HC00F	IC (2CH NAND GATE)		
IC1			UPD74HC00G	IC (2CH NAND GATE)		
IC2			TC74HC74F	IC (D FLIP-FLOP)		
IC2		*	UPD74HC74G	IC (D FLIP-FLOP)		

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	-	Connect a DC voltmeter across CP1 (L) CP2 (R). (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X07-)	9mV	(a)
2	VCXO (1)	Remove J107 and apply 2.5V DC to TP4. (X32-)	Connect a frequency counter to TP6. (X32-)	-	L5 (X32-)	Oscillation frequency: 16.9844MHz (After adjustment, attach J107 again.)	(b)
3	VCXO (2)	Remove J107 and apply 2.5V DC to TP4. (X32-)	Connect a frequency counter to TP5. (X32-)	-	L4 (X32-)	Oscillation frequency: 18.432MHz (After adjustment, attach J107 again.)	(c)
4	OUTPUT LEVEL ADJUSTMENT	Connect a digital SG or CD player to the digital input, and play a 1kHz, 0dB signal. (Test disc: SONY Type 4, T-No.2)	Connect a load of 10kΩ and AC voltmeter to REC OUT.	-	VR1, 2 (X32-)	Output level: 2V	
5	DISTORTION ADJUSTMENT	Connect a digital SG or CD player to the digital input, and play a 1kHz, 0dB signal. (Test disc: SONY Type 4, T-No.2)	Connect a load of 10kΩ and distortion meter to REC OUT.	-	VR3, 4 VR5, 6 (X32-)	Adjust VRs 3 and 4 (or VRs 5 and 6) alternately for a few times to minimize the distortion rate figure.	



ADJUSTING POINT OF THE PROCESSOR UNIT (X32-1200-00)

REGLAGE

N°	ITEM	RÉGLAGE DE L'ENTRÉE	RÉGLAGE DE LA SORTIE	RÉGLAGE DE L'AMPLIFICATEUR	POINT L'ALIGNEMENT	ALIGNER POUR	
1	COURANT DE POLARISATION	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D). (X09-)	VOLUME: 0	VR1 (G) VR2 (D) (X07-)	9mV	(a)
2	VCXO (1)	Retirer J107 et appliquer 2.5V CC à TP4. (X32-)	Relier un compteur de fréquence à TP6. (X32-)	-	L5 (X32-)	Fréquence d'oscillation: 16.9844MHz (Après l'ajustement, fixer J107 à nouveau.)	(b)
3	VCXO (2)	Retirer J107 et appliquer 2.5V CC à TP4. (X32-)	Relier un compteur de fréquence à TP5. (X32-)	-	L4 (X32-)	Fréquence d'oscillation: 18.432MHz (Après l'ajustement, fixer J107 à nouveau.)	(c)
4	ADJUSTER DU NIVEAU DE SORTIE	Raccorder un générateur de signal numérique ou un lecteur CD à l'entrée numérique et lire un signal 1kHz, 0dB. (Disque test: SONY Type 4, Piste 2)	Raccorder une charge de 10kΩ et un voltmètre CA à REC OUT.	-	VR1, 2 (X32-)	Niveau de sortie: 2V	
5	ADJUSTER DE LA DISTORSION	Raccorder un générateur de signal numérique ou un lecteur CD à l'entrée numérique et lire un signal 1kHz, 0dB. (Disque test: SONY Type 4, Piste 2)	Raccorder une charge de 10kΩ et un compteur de distorsion à REC OUT.	-	VR3, 4 VR5, 6 (X32-)	Ajuster les VR3 et 4 (ou 5 et 6) alternativement plusieurs fois pour minimiser le chiffre de taux de distorsion.	

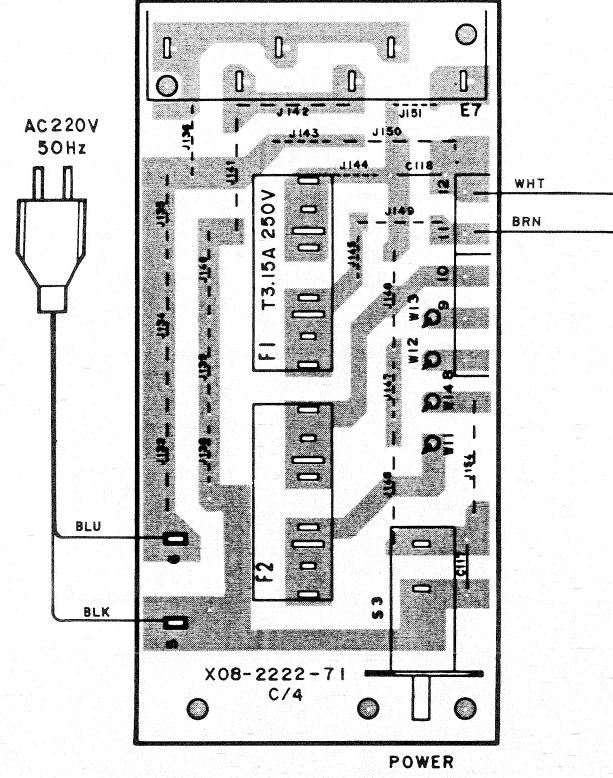
KA-D1100EX

ABGLEICH

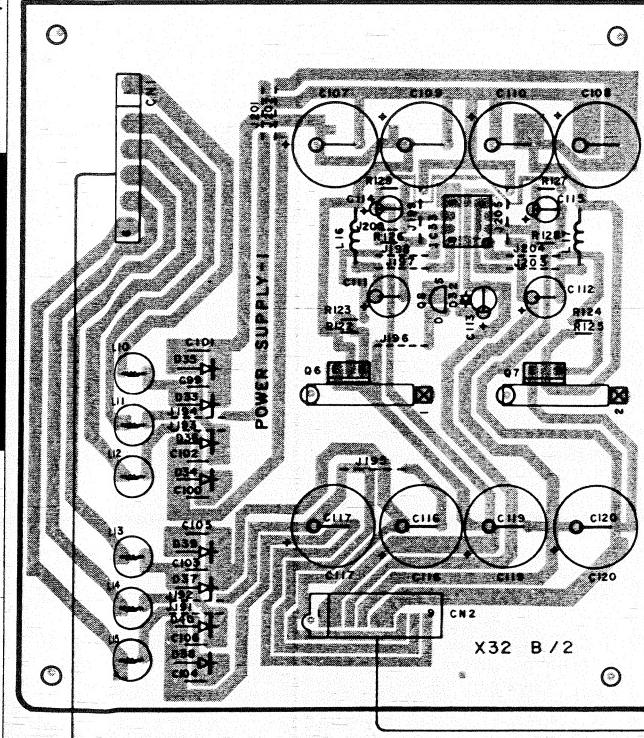
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	—	Einen Gleichspannungsmesser über CP1 (L) CP2 (R). anschließen. (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X07-)	9mV	(a)
2	VCXO (1)	J107 entfernen und 2,5V Gleichstrom an TP4 anlegen. (X32-)	Einen Frequenzzähl器 an TP6 anschließen. (X32-)	—	L5 (X32-)	Oszillationsfrequenz: 16.984MHz (Nach der Einstellung J107 wieder anbringen.)	(b)
3	VCXO (2)	J107 entfernen und 2,5V Gleichstrom an TP4 anlegen. (X32-)	Einen Frequenzzähl器 an TP5 anschließen. (X32-)	—	L4 (X32-)	Oszillationsfrequenz: 18.432MHz (Nach der Einstellung J107 wieder anbringen.)	(c)
4	AUSGANGSPEGEL-EINSTELLUNG	Einen digitalen Signalgenerator oder CD-Spieler an den Digital-Eingang anschließen und ein 1kHz, 0dB Signal erzeugen. (Testdisc: SONY Typ 4, Titel 2)	Eine Last von 10kΩ und einen Wechselspannungsmesser an REC OUT anschließen.	—	VR1, 2 (X32-)	Ausgangspegel: 2V	
5	VERZERRUNGS-EINSTELLUNG	Einen digitalen Signalgenerator oder CD-Spieler an den Digital-Eingang anschließen und ein 1kHz, 0dB Signal erzeugen. (Testdisc: SONY Typ 4, Titel 2)	Eine Last von 10kΩ und einen Verzerrungsmeter an REC OUT anschließen.	—	VR3, 4 VR5, 6 (X32-)	VR3 und 4 (oder VR5 und 6) mehrmais abwechselnd einstellen, um die Verzerrungsrate-Figur zu minimieren.	

PC BOARD (Component Side View)

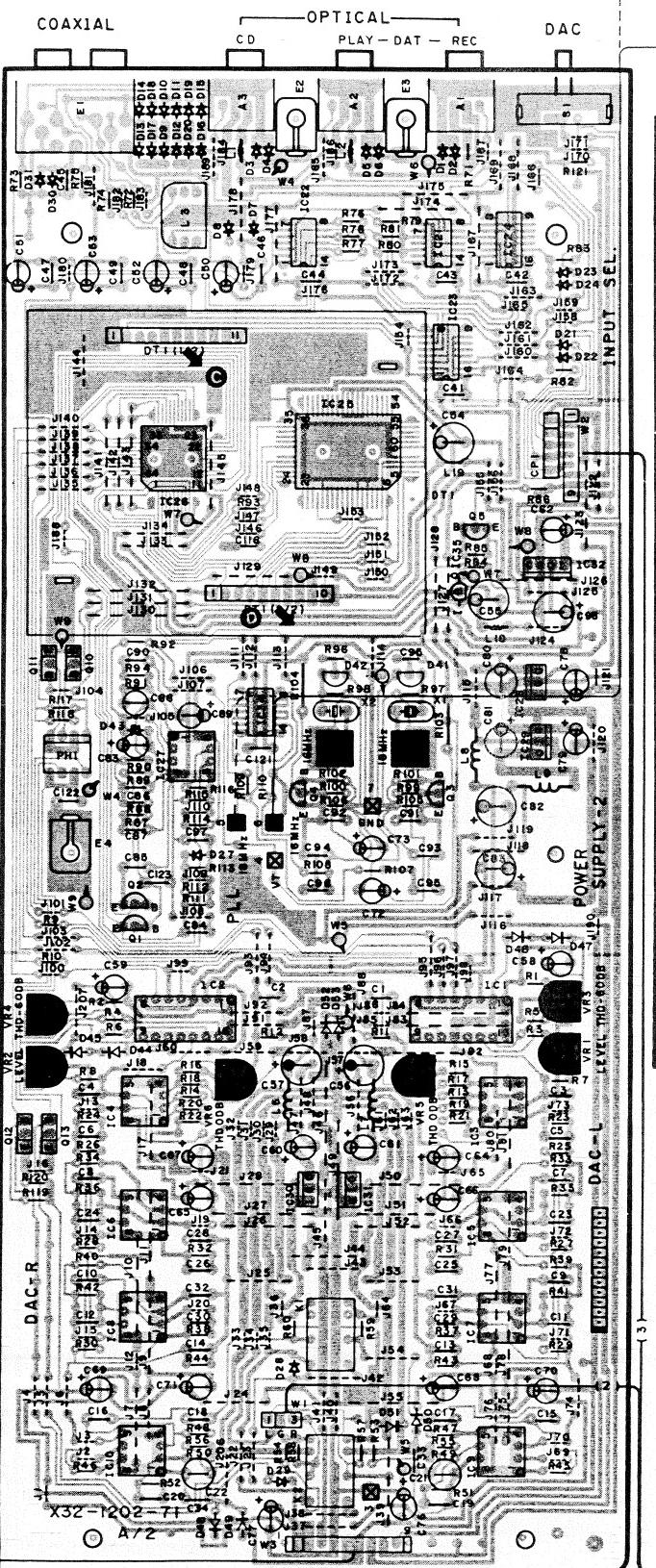
Pre-amplifier unit (X08-2222-71)



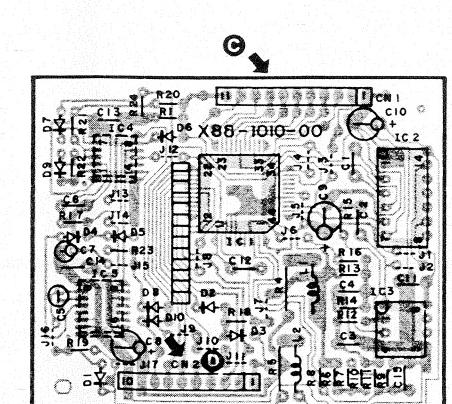
Processor unit (X32-1202-71)



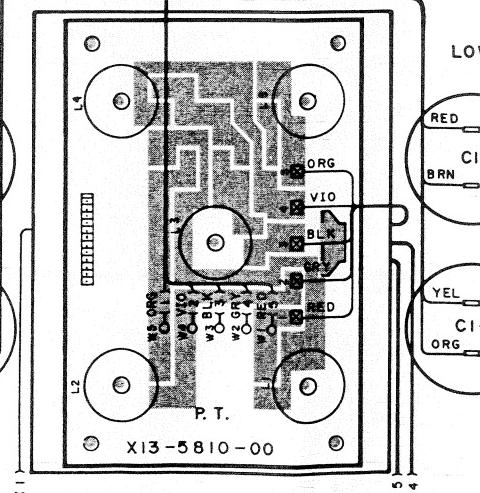
Processor unit (X32-1202-71)



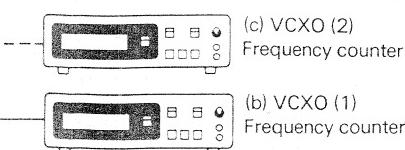
Digital I/O unit (X88-1010-00)



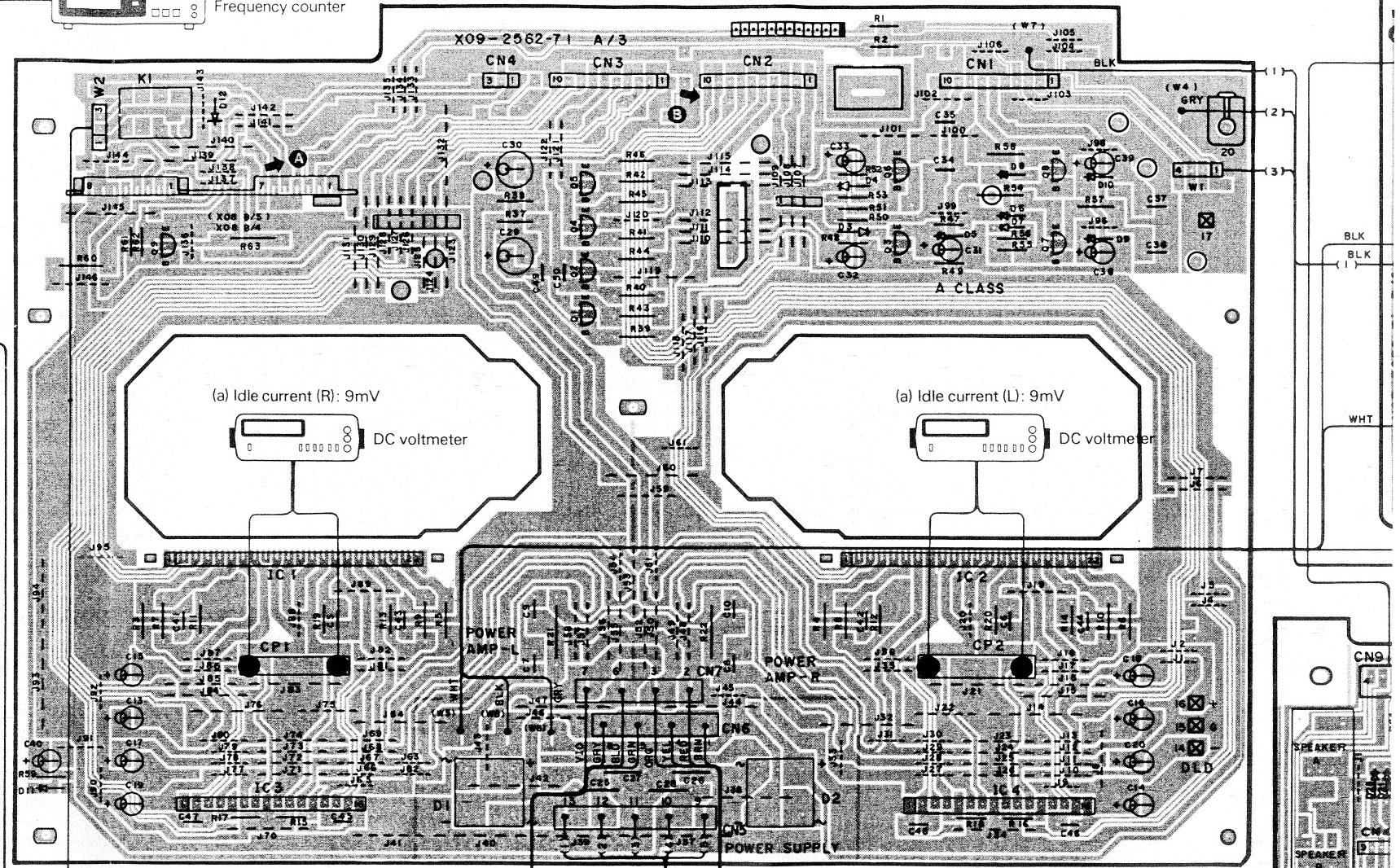
Sub-circuit unit (X13-5810-00)

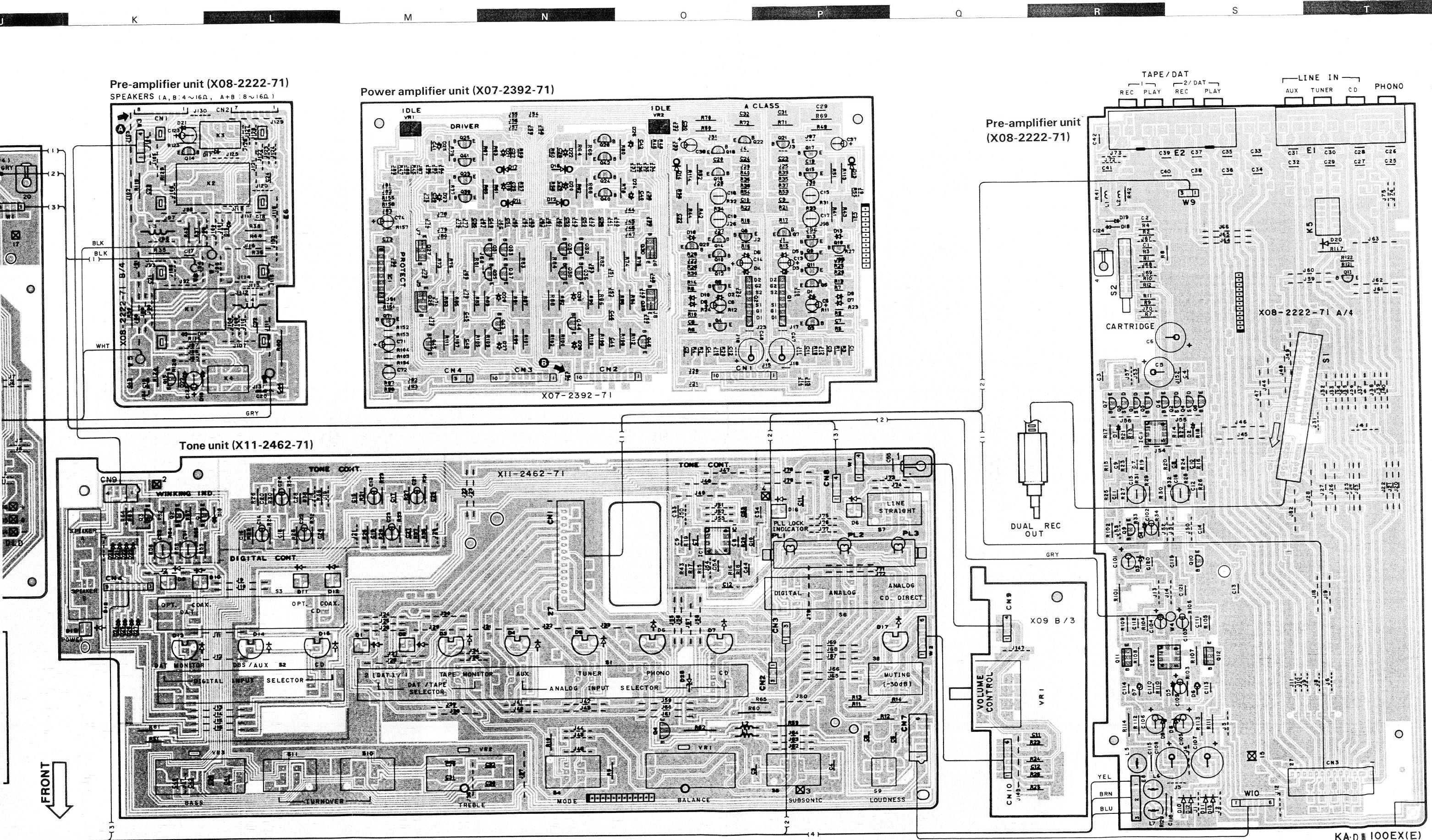


Audio unit (X09-2562-71)

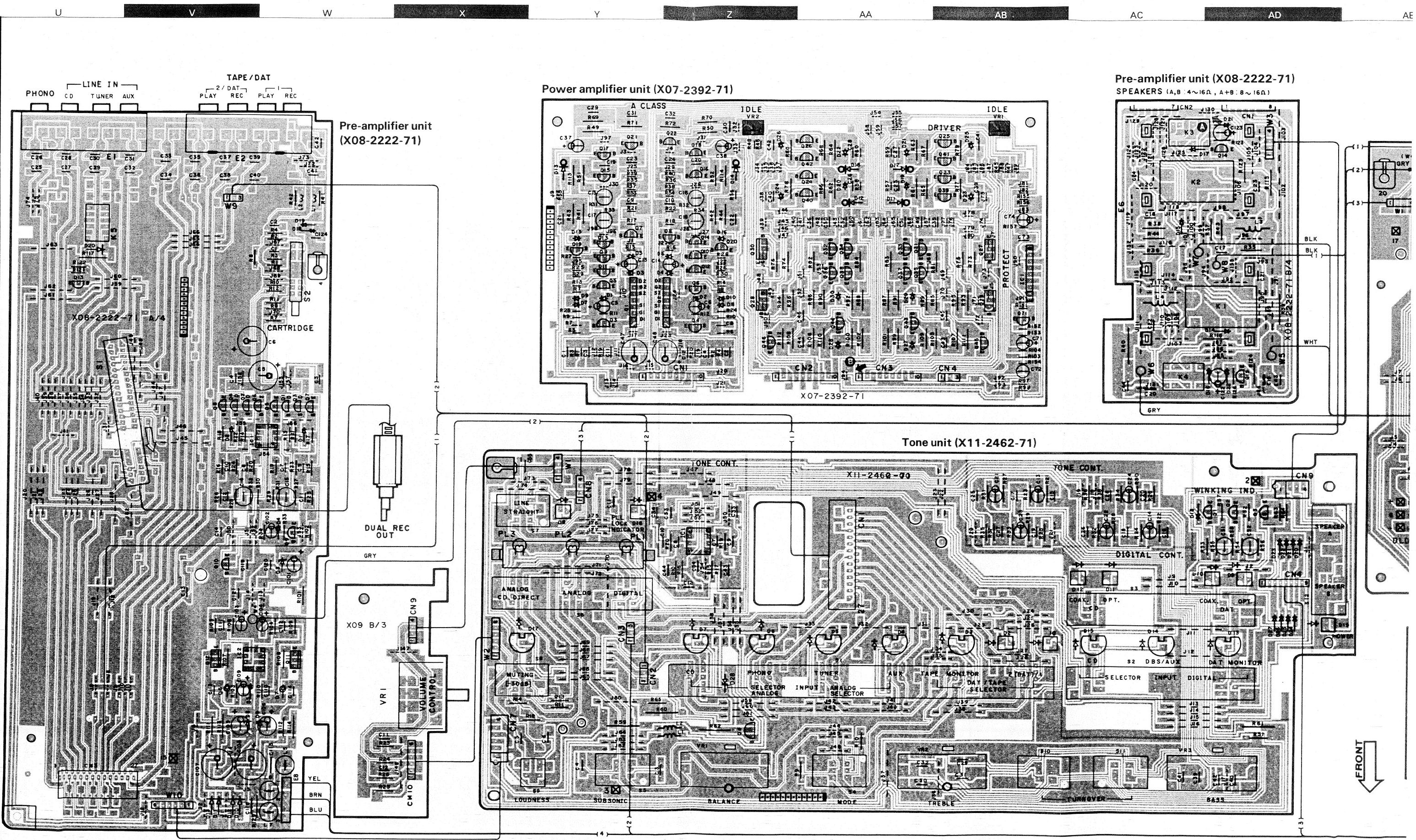


X09-2562-71 A/3





Refer to the schematic diagram for the values of resistors and capacitors.



AE

AF

AG

AH

AI

AJ

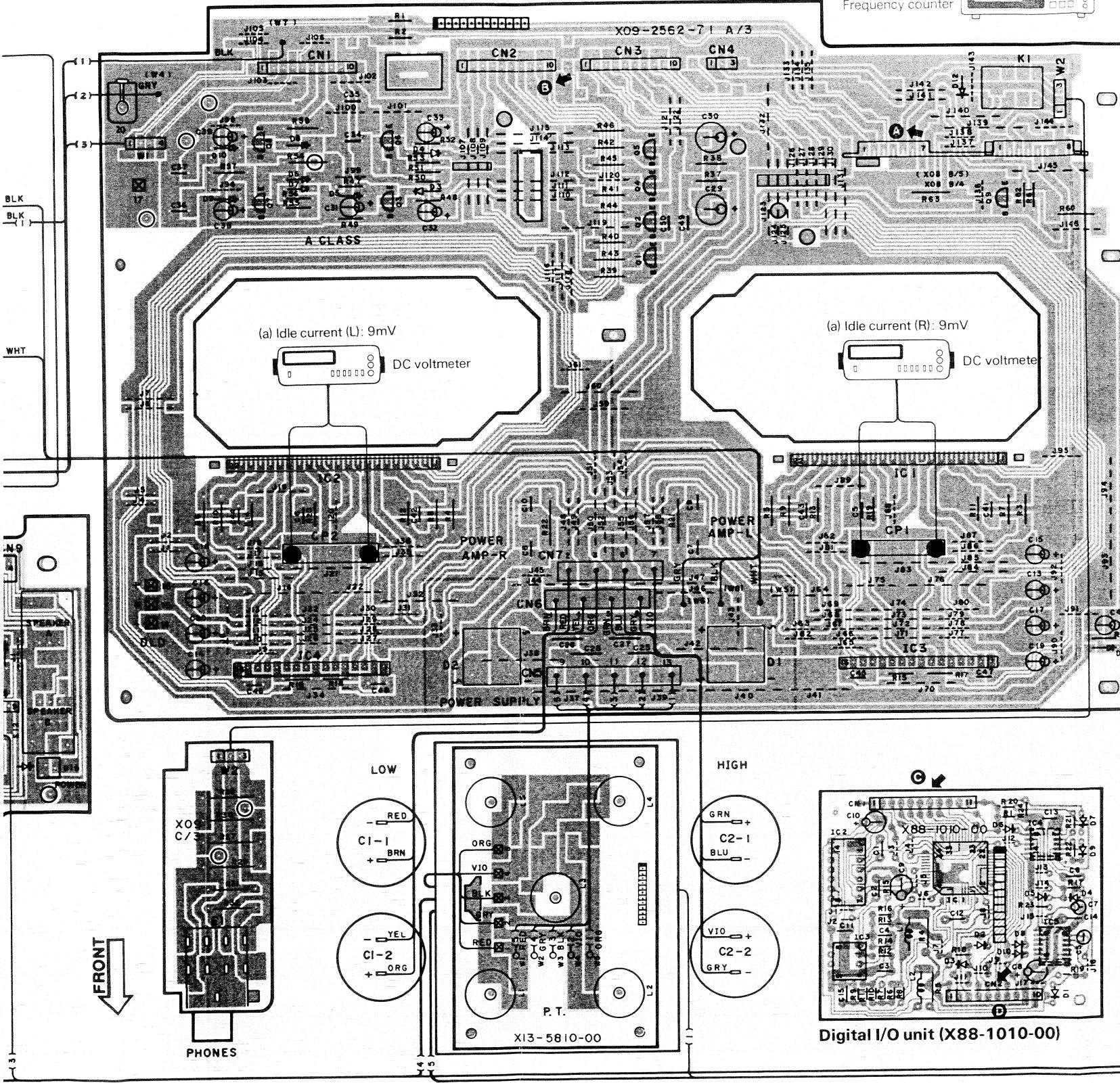
AK

AL

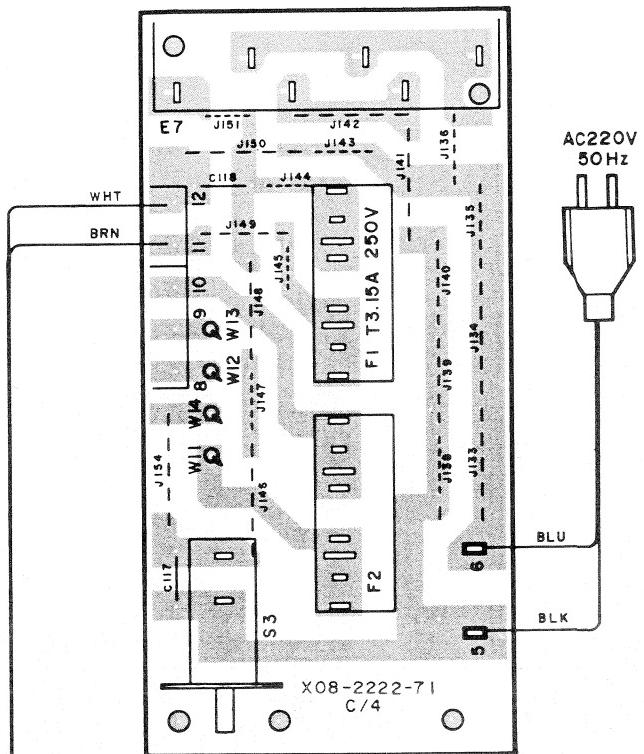
AM

AN

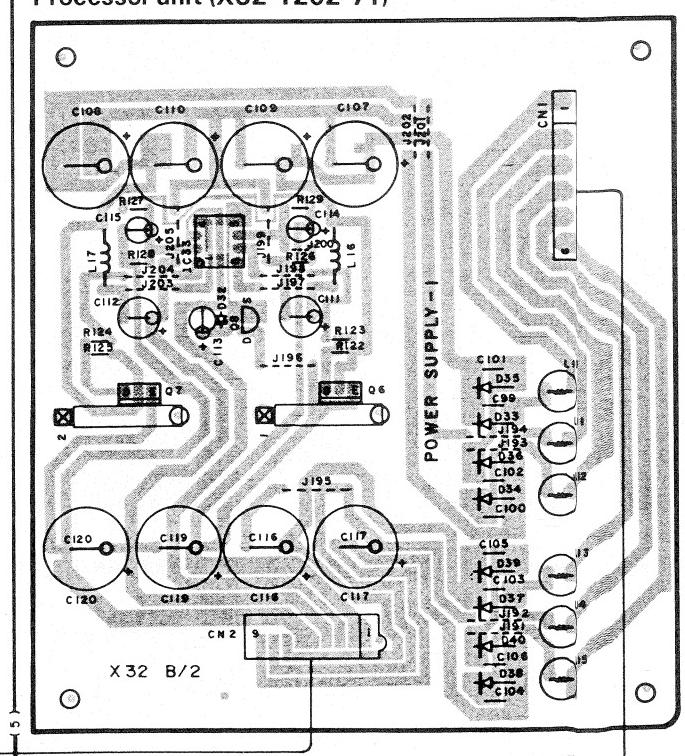
Audio unit (X09-2562-71)

(c) VCXO (2)
Frequency counter(b) VCXO (1)
Frequency counter**PC BOARD** (Foil Side View)

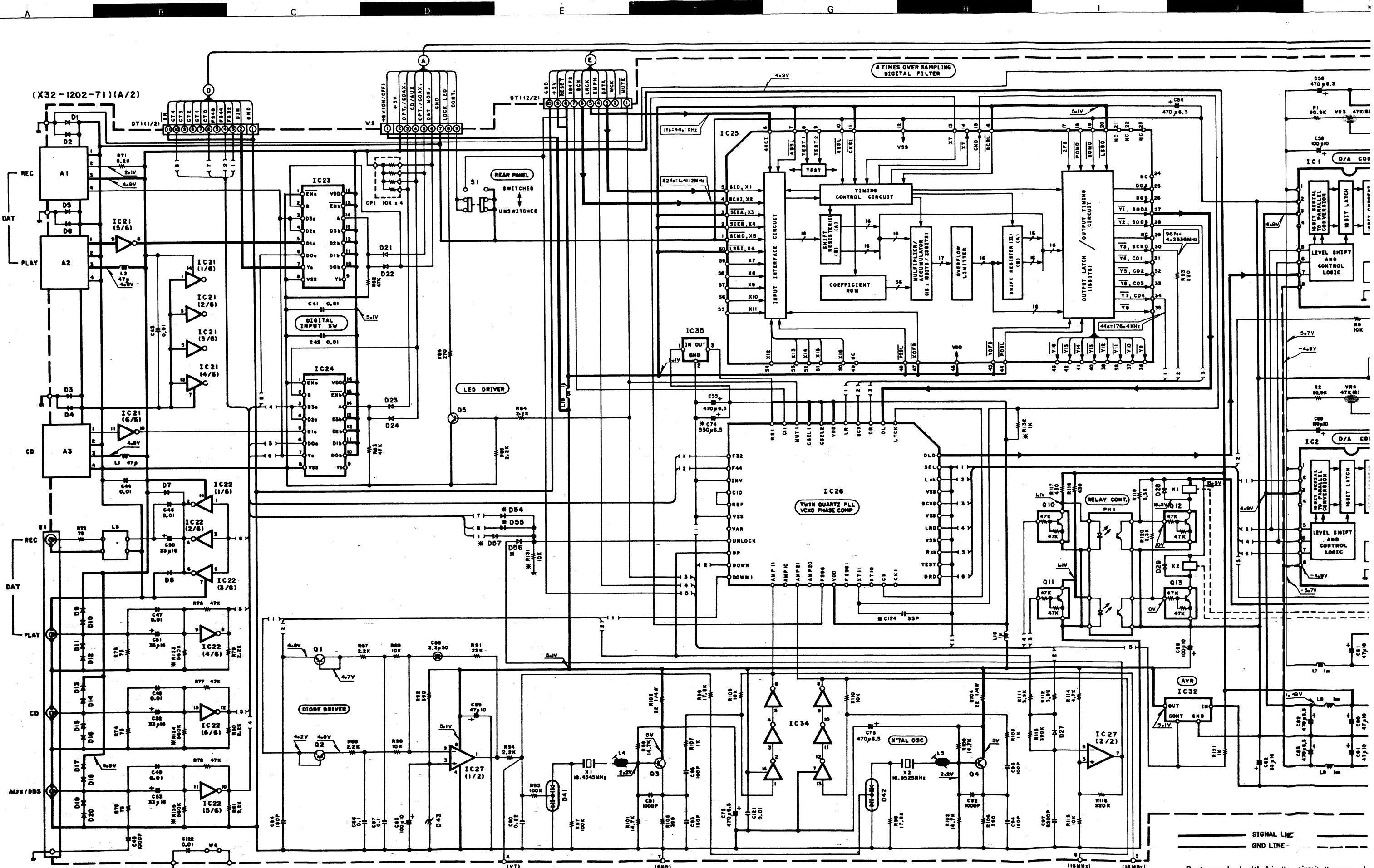
Pre-amplifier unit (X08-2222-71)



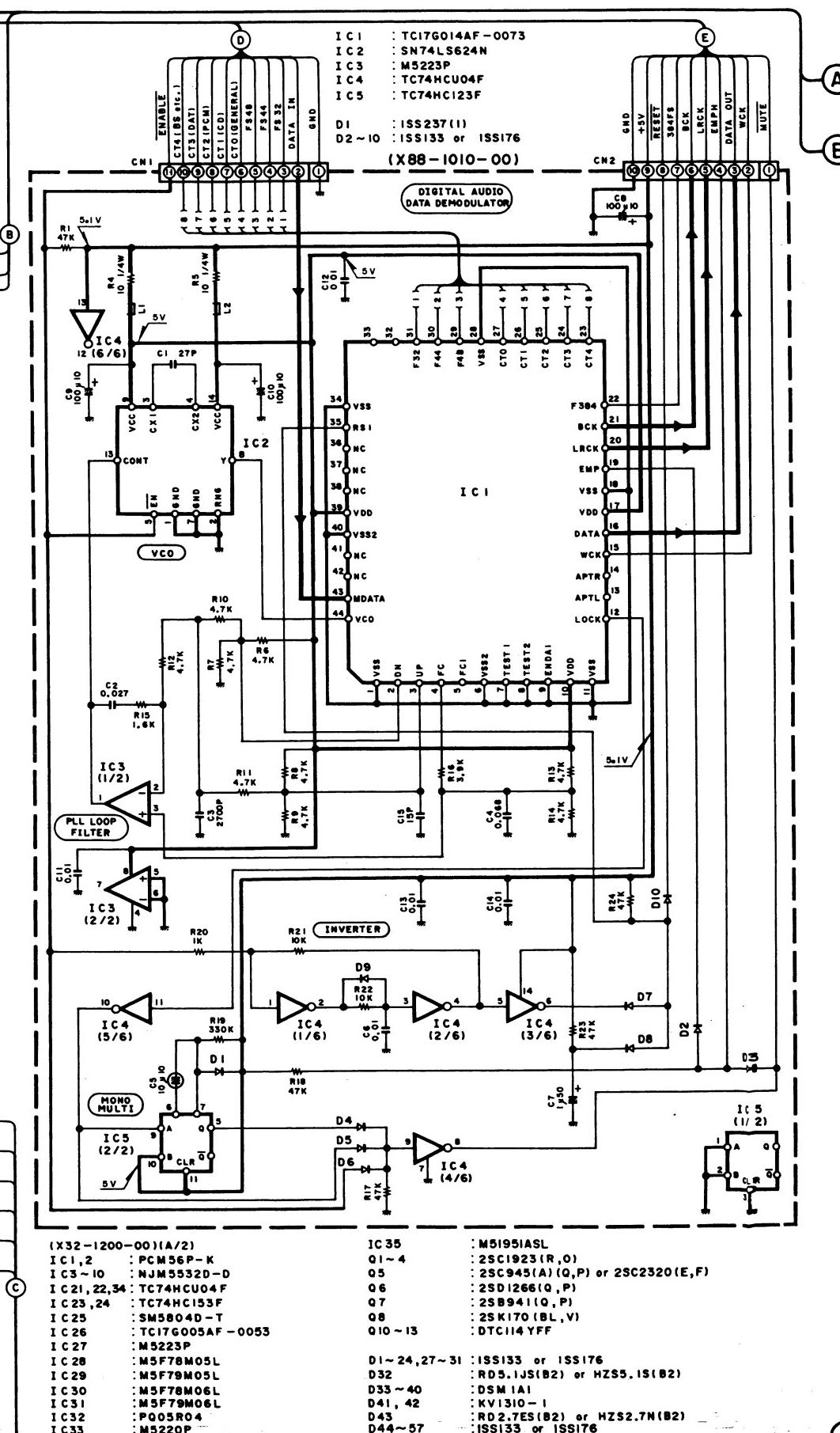
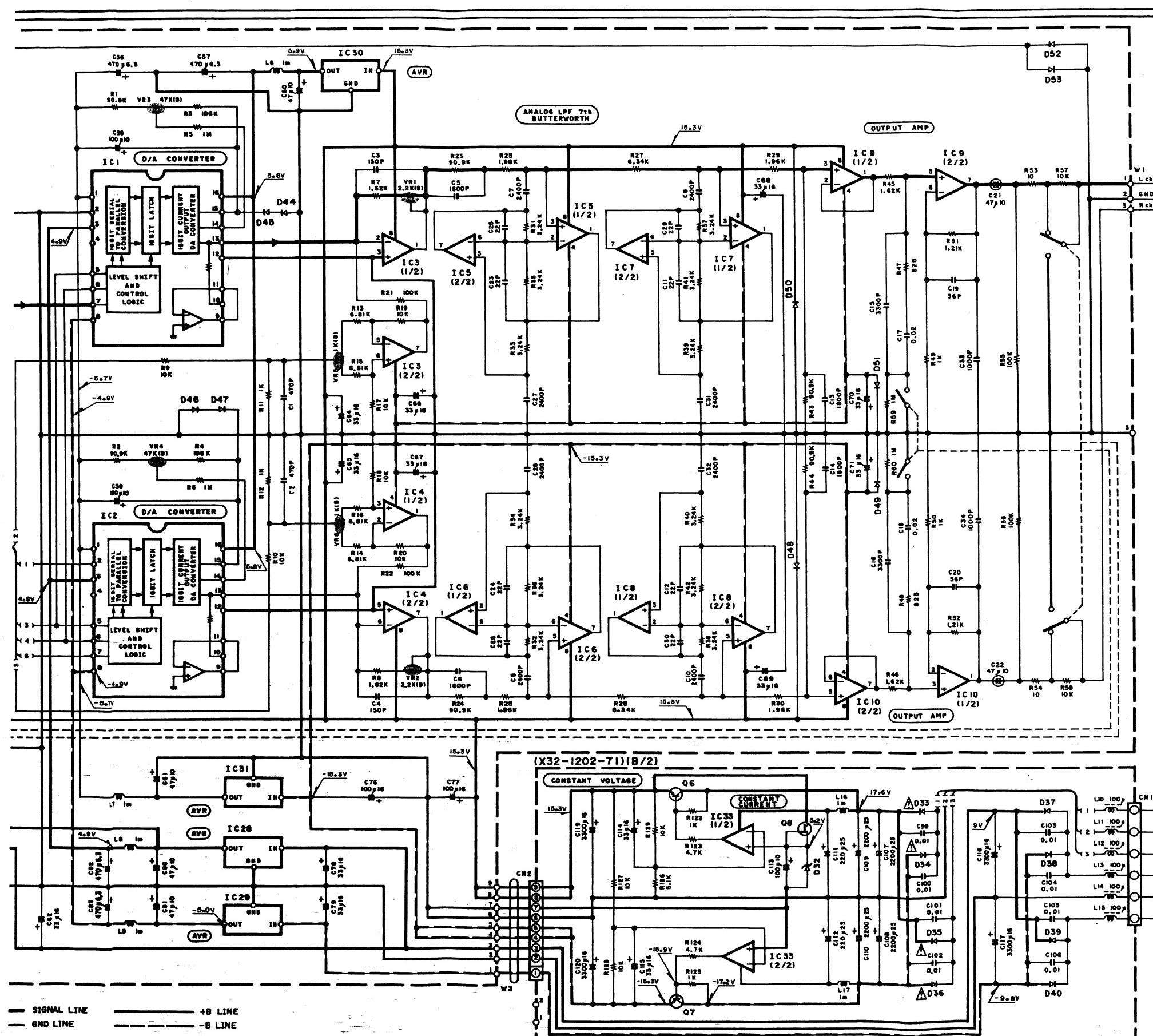
Processor unit (X32-1202-71)



Processor unit (X32-1202-71)



Parts marked with * in the circuit diagram at C74, C124 and R131 to R135 are attached to PC board of only the unit produced in the period from January 1987 to January 1988, therefore not shown in the diagram. Except for C74, these parts are expected from the units produced from February 1988.



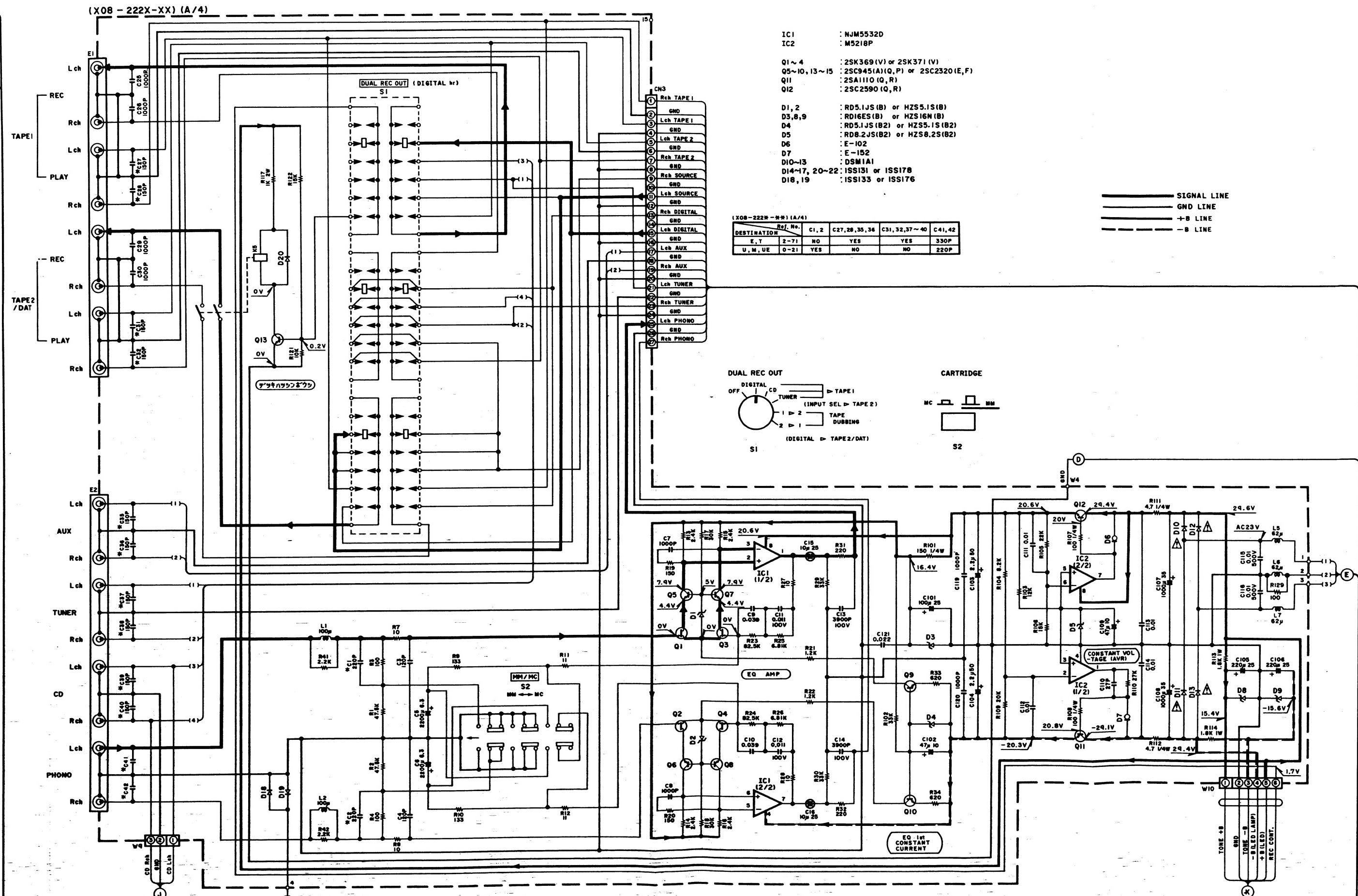
ed with * in the circuit diagram above (D54 to D57, and R131 to R135) are attached to the back side of f only the units produced in the period from October to January 1988, therefore not shown in the PC board diagram for C74, these parts are expected to be eliminated from units produced from February 1988 and on.

- CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

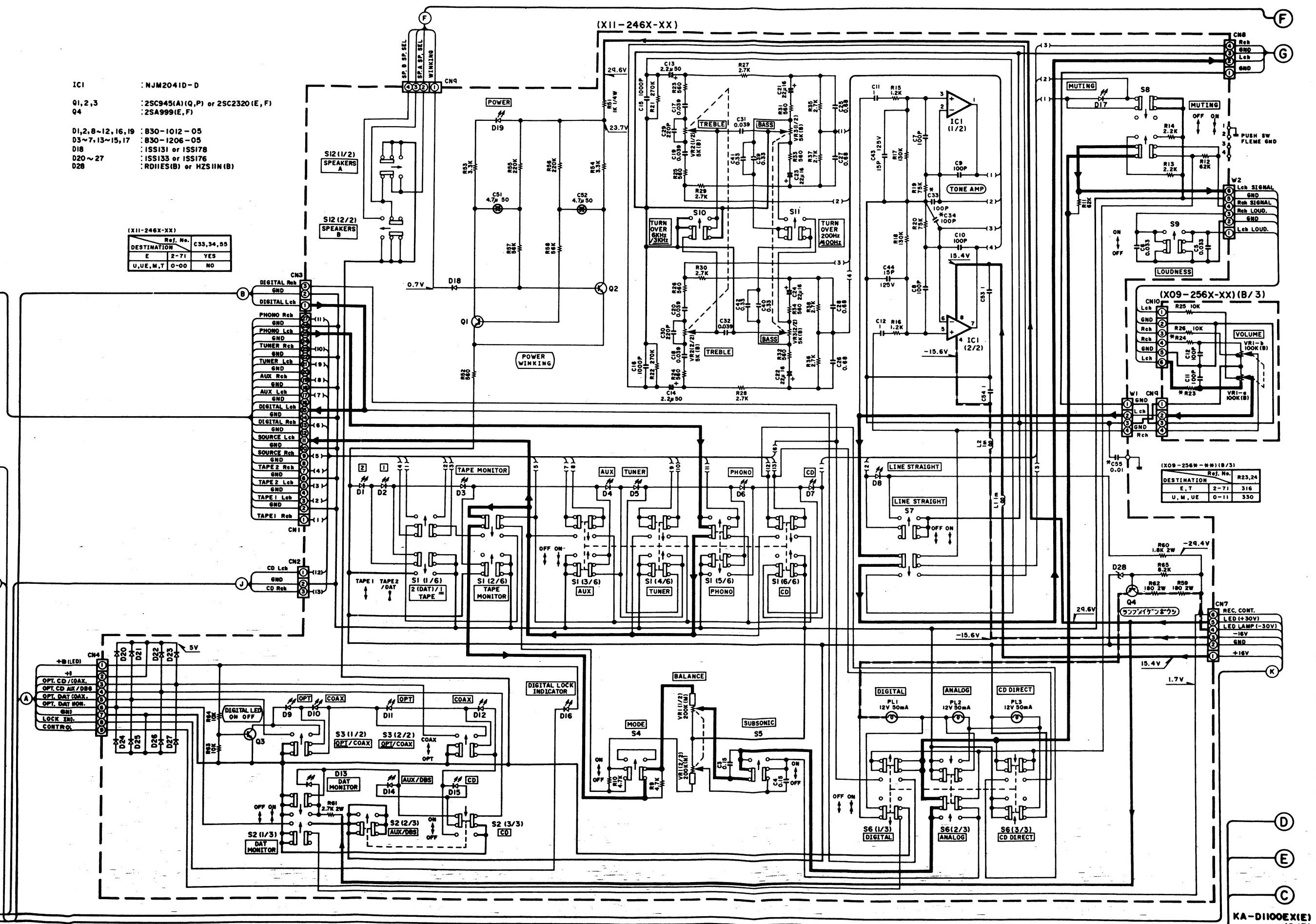
 - DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
 - Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

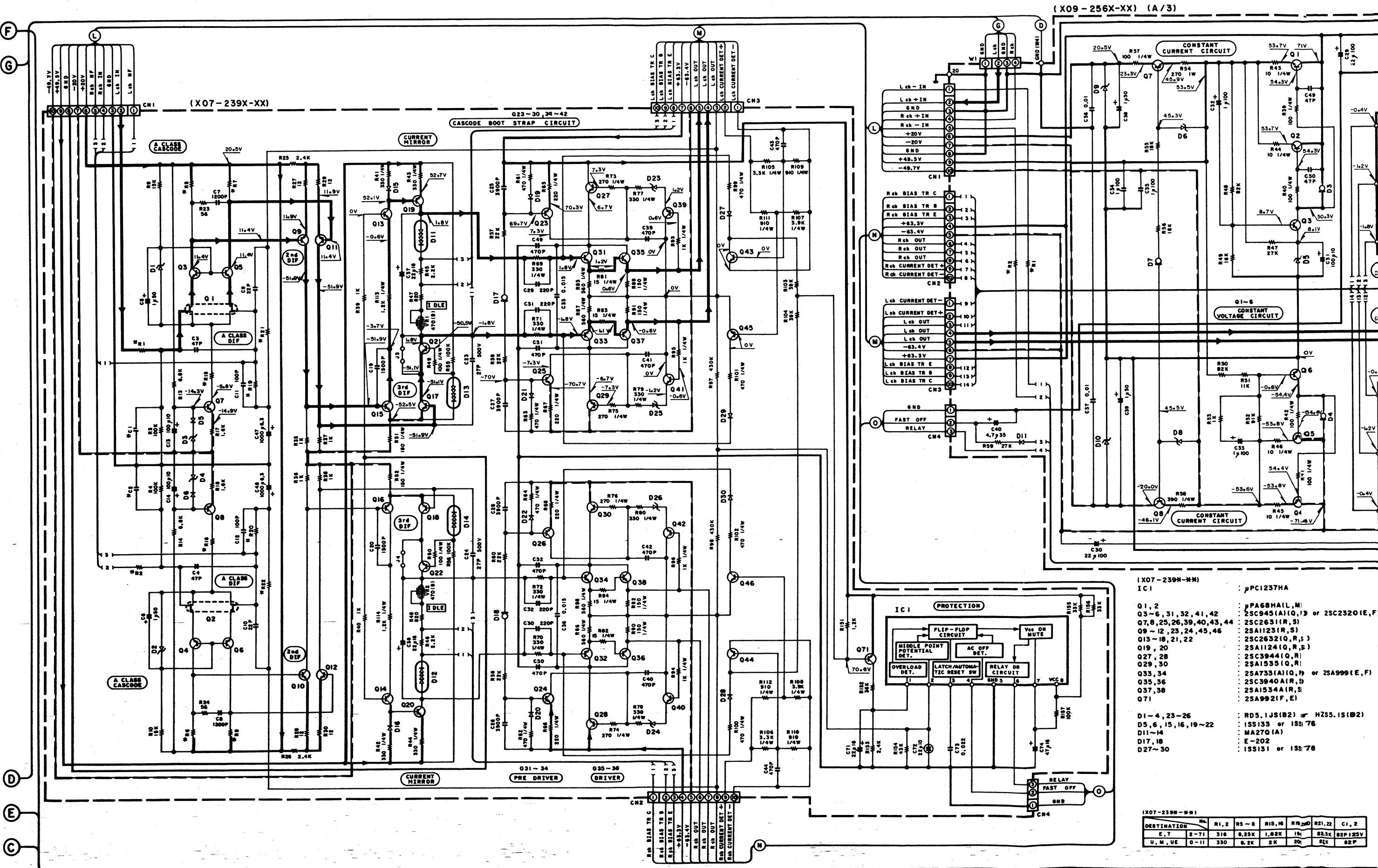
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. erheblich.

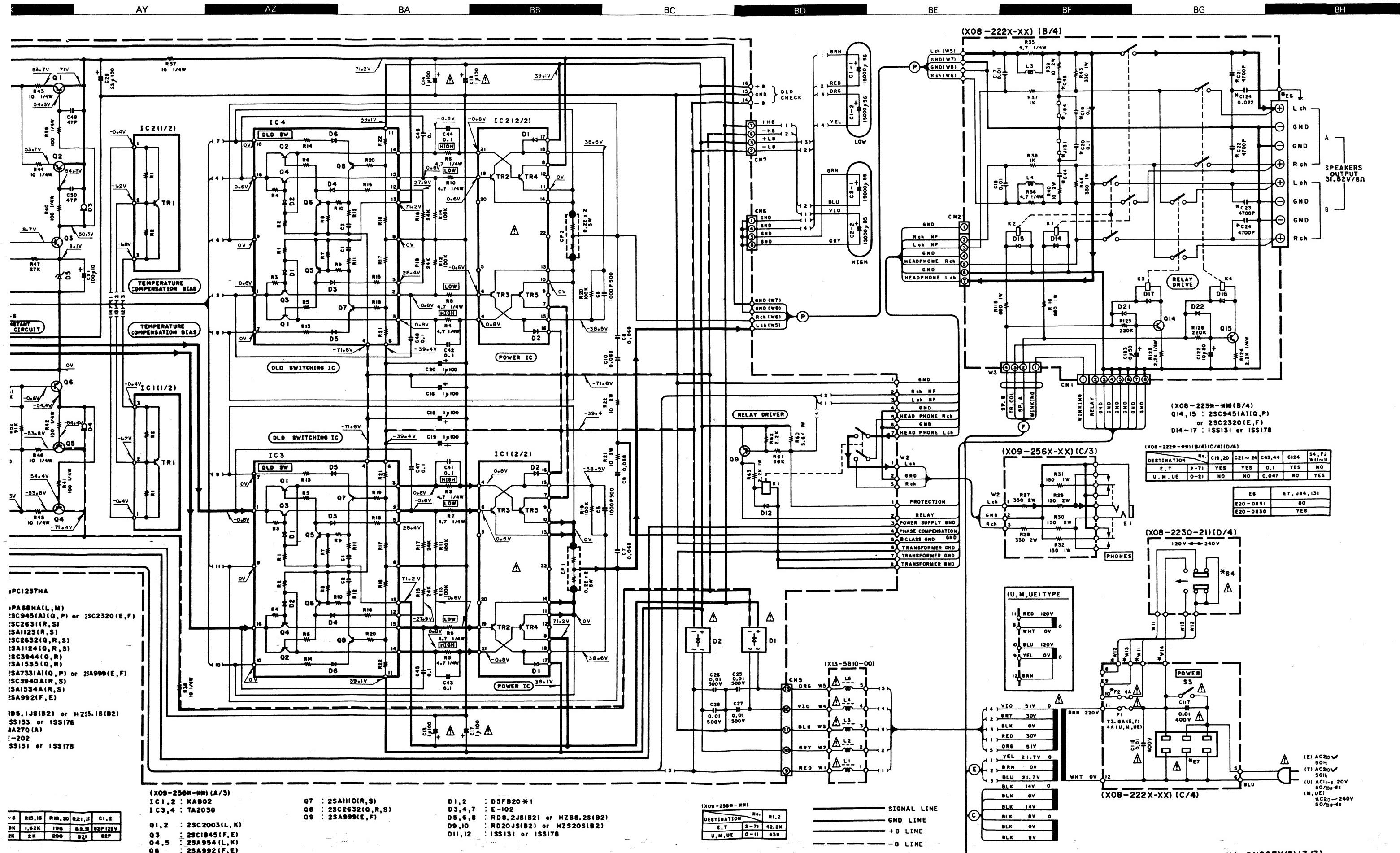
U V W X Y Z AA AB AC AD AE



AE AF AG AH AI AJ AK AL AM AN







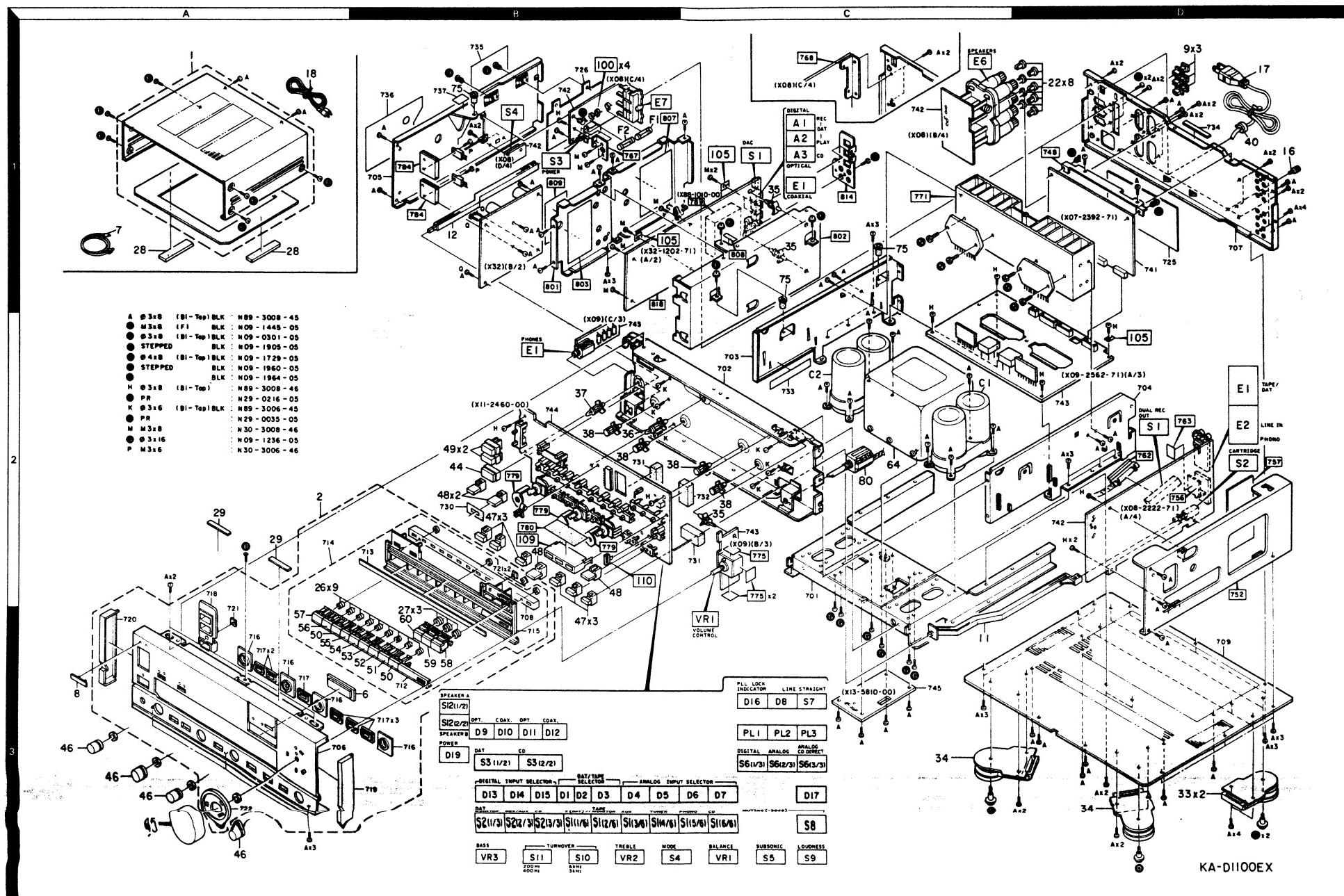
KA-D110DEX

KENWOOD

KA-D110DEX

KA-D1100EX KA-D1100EX

EXPLODED VIEW



KA-D1100EX KA-D1100EX

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Tüte ohne Parts No. werden nicht geliefert

Ref. No.	Address	New Parts No.	Parts No.	Description	Destination	Remarks
參照番号	位置	部品番号	部品番号	部品名／規格	仕向	備考
KAD-1100EX						
1	1A	A01-1605-01	METALLIC CABINET	TE		
1	1A	* A01-1621-01	METALLIC CABINET	UMUE		
2	2A	* A20-5396-02	PANEL ASSY			
6	3B	B10-0909-04	FRONT GLASS			
7	1A	B19-0531-05	OPTICAL FIBER ASSY	UMUETE		
8	3A	B43-0278-04	KENWOOD BADGE			
9	1D	B09-0063-05	CAP			
		B46-0094-03	WARRANTY CARD	UUE		
		B46-0095-03	WARRANTY CARD	UUE		
-		B46-0122-13	WARRANTY CARD	E		
-		B46-0143-03	WARRANTY CARD	T		
-		* B50-8653-00	INSTRUCTION MANUAL (ENGLISH)	ME		
-		* B50-8654-00	INSTRUCTION MANUAL (FRENCH)			
-		* B50-8655-00	INSTRUCTION MANUAL (SPANISH)	M		
-		* B50-8657-00	INSTRUCTION MANUAL (G.D.I.)	E		
-		B58-0223-04	CAUTION CARD (PRE-SET 120V)	U		
-		B58-0513-04	CAUTION CARD (PRESET220-240)	UE		
-		B58-0803-13	CAUTION CARD	E		
-		B58-0862-00	CAUTION CARD	E		
-		B59-0092-00	SERVICE DIRECTORY	UUE		
C1	2C	* C90-1595-05	ELECTRO	15000UFX256WV		
C2	2C	* C90-1596-05	ELECTRO,	15000UFX285WV		
11	3C	D21-1415-03	EXTENSION SHAFT(CARTRIDGE)			
12	1B	D21-1416-03	EXTENSION SHAFT(POWER SW)			
16	1D	E21-0006-25	BINDING POST			
17	1D	E30-0459-05	AC POWER CORD	E		
17	1D	E30-0812-05	AC POWER CORD	UMUE		
17	1D	E30-1416-05	AC POWER CORD	T		
18	1A	* E30-2350-05	AUDIO CORD			
22	1D	* F19-0562-05	HOLE CAP			
F1	1B	F05-3121-05	FUSE (SEMKO) (250V T3. 15A)	TE		
F1	1B	F05-4022-05	FUSE (250V 4A)	UMUE		
26	2A	G01-2138-04	COMPRESSION SPRING(DAT)			
27	3B	G01-2139-04	COMPRESSION SPRING(DIGITAL)			
28	1A	G11-0153-04	SOFT TAPE (80X12X3) CASE			
29	2A	G11-0155-14	SOFT TAPE (40X9X2) PANEL			
-		* H01-7723-04	ITEM CARTON CASE			
-		H10-3519-12	POLYSTYRENE FOAMED FIXTURE			
-		H10-3520-02	POLYSTYRENE FOAMED FIXTURE			
-		H25-0232-04	PROTECTION BAG (235X350X0.03)			
-		H25-0274-04	PROTECTION BAG (900X500X0.05)			
33	3D	J02-0358-05	INSULATOR ASSY (4KG)			
34	3C, 3D	J02-0360-05	INSULATOR ASSY (6KG)			
35	1C, 2C	J19-0506-05	UNIT HOLDER (H=8.3)			
36	2B	J19-0514-05	UNIT HOLDER (H=11.3)			
37	2B	J19-0515-05	UNIT HOLDER (H=8.3)			
38	2B, 2C	J19-2536-05	UNIT HOLDER			
40	1D	J42-0083-05	POWER CORD BUSHING	UMUE		

E: Scandinavia & Europe K: USA P: Canada

U: EX-East, E: West, T: England, M: Other Areas

Australia

SE - SE(Europe) A: Australia

* New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Tele-Link Parts No. 100-000000000000000

Ref. No.	Address	New Parts No.	Parts No.	Description	Desti- nation 地	Re- marks 備考
參照番号	位 置	部 品番 号	部 品名 / 規 格			
44	2B	K29-2432-03	KNOB ASSY (BUTTON) POWER			
45	3A	K29-2837-04	KNOB (VOLUME CONTROL)			
46	3A	K29-2838-04	KNOB (BASS-TREB,BAL,REC BUT)			
47	2B, 3B	K29-2843-04	KNOB ASSY (BUTTON) TURNOVER, M8			
48	2B	K29-2845-04	KNOB ASSY (BUTTON) DAT, CD, MUTE			
49	2B	K29-2847-04	KNOB ASSY (BUTTON) SPEAKER			
50	3A, 3B	K29-2849-04	KNOB ASSY (BUTTON) CD			
51	3B	K29-2850-04	KNOB ASSY (BUTTON) PHONO			
52	3B	K29-2851-04	KNOB ASSY (BUTTON) TUNER			
53	3A	K29-2852-04	KNOB ASSY (BUTTON) AUX			
54	3A	K29-2853-04	KNOB ASSY (BUTTON) TAPE MONI			
55	3A	K29-2854-04	KNOB ASSY (BUTTON) 2(DAT)/1			
56	3A	K29-2855-04	KNOB ASSY (BUTTON) DBS/AUX			
57	3A	K29-2856-04	KNOB ASSY (BUTTON) DAT MONITOR			
58	3B	K29-2862-04	KNOB ASSY (BUTTON) ANLG,CD DIR			
59	3B	K29-2863-04	KNOB ASSY (BUTTON) ANALOG			
60	3B	K29-2864-04	KNOB ASSY (BUTTON) DIGITAL			
△ 64	2C	* L01-4872-05	POWER TRANSFORMER		E	
△ 64	2C	* L01-4875-05	POWER TRANSFORMER		UMUE	
△ 64	2C	* L01-4877-05	POWER TRANSFORMER		T	
-		L92-0019-05	FERRITE CORE			
B 75	1C	N14-0179-05	BUILD-IN NUT			
B	2A	N09-1445-05	SET SCREW (M3X8) PANEL			
C	1C, 1D	N09-0301-05	TAPITTE SCREW (03X8) X32		UMUETE	
D	3C, 3D	N09-1905-05	STEPPED SCREW FOOT			
E	1A	N09-1729-05	TAPITTE SCREW (04X8) CASE			
F	1C	* N09-1960-05	STEPPED SCREW X32			
G	3C	* N09-1964-05	MACHINE SCREW TRANS			
J	1B	N29-0216-05	RIVET			
80	2C	S90-0106-05	REMOTE SWITCH SHAFT			
POWER AMPLIFIER UNIT (X07-2392-71)						
C1 , 2		CC45FSL1H2820J	CERAMIC	82PF	J	UMUE
C1 , 2		C91-0177-05	POLYSTY	82PF	K	TE
C3 , 4		CC45FSL1H470J	CERAMIC	47PF	J	UMUE
C3 , 4		* C91-0979-05	CERAMIC	47PF	G	TE
C5 , 6		CE04KWH1010MEL	ELECTRQ	1.0UF	50WV	
C7 , 8		CF92FV1H1222J	MF	1200PF	J	
C9 , 10		CC45FSL1H220J	CERAMIC	22PF	J	UMUE
C9 , 10		* C91-0978-05	CERAMIC	22PF	G	TE
C11 , 12		CC45FSL1H101J	CERAMIC	100PF	J	UMUE
C11 , 12		CQ09FSL1H101JZS	POLYSTY	100PF	J	TE
C13 , 14		CE04KWH1A101MEL	ELECTRQ	100UF	10WV	
C19 , 20		CK45FBH152K	CERAMIC	1500PF	K	
C23 , 24		CC45FSL2H270J	CERAMIC	27PF	J	
C25 - 28		CF92FV1H392J	MF	3900PF	J	
C29		CC45FSL1H221J	CERAMIC	220PF	J	
C30		CC45FSL1H221J	CERAMIC	220PF	J	
C31 , 32		CC45FSL1H221J	CERAMIC	220PF	J	
C35 , 36		CF92FV1H153J	MF	0.015UF	J	
C37 , 38		CE04KWH1C220MEL	ELECTRQ	22UF	16WV	
C39 - 44		CK45FBH1471K	CERAMIC	470PF	K	
C47 , 48		CE04KWDJ102MEL	ELECTRQ	1000UF	6.3WV	
C49 - 52		CK45FBH1471K	CERAMIC	470PF	K	

E: Scandinavia & Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other

UE : AAFES(Europe) X: Australia

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 indicates safety critical components.

 indicates safety critical components

KA-D1100EX KA-D1100EX

PARTS LIST

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Ref. No. 參照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕	Re- marks 備考
C71			CE04KW1C220MEL	ELECTRO 22UF 16WV		
C72			C90-1333-05	NP-ELEC 22UF 10WV		
C73			CF92FV1H223J	MF 0.022UF J		
C74			CE04KW1C470MEL	ELECTRO 47UF 16WV		
L	1D		N29-0035-05	PUSH RIVET (3.5X5.5)		
R1 .2			RN14BK2C3160FTS	RN 316.0 F 1/6W TE		
R3 .4			RN14BK2C1003FTS	RN 100K F 1/6W TE		
R5 .8			RN14BK2CB251FTS	RN 8.25K F 1/6W TE		
R15 .16			RN14BK2C1621FTS	RN 1.62K F 1/6W TE		
R19 .20			RN14BK2C1960FTS	RN 196.0 F 1/6W TE		
R21 .22			RN14BK2C8252FTS	RN 82.5K F 1/6W TE		
R41 -44			RD14AB2E331JTS	FL-PR00F RD 330 J 1/4W		
R49 .50			RD14AB2E101JTS	FL-PR00F RD 100 J 1/4W		
R51 .52			RD14AB2E181JTS	FL-PR00F RD 180 J 1/4W		
R61 -64			RD14AB2E471JTS	FL-PR00F RD 470 J 1/4W		
R65 .68			RD14AB2E221JTS	FL-PR00F RD 220 J 1/4W		
R69 .72			RD14AB2E331JTS	FL-PR00F RD 330 J 1/4W		
R73 .76			RD14AB2E271JTS	FL-PR00F RD 270 J 1/4W		
R77 .80			RD14AB2E331JTS	FL-PR00F RD 330 J 1/4W		
R81 .84			RD14AB2E150JTS	FL-PR00F RD 15 J 1/4W		
R85 .88			RD14AB2E561JTS	FL-PR00F RD 560 J 1/4W		
R89 .92			RD14AB2E151JTS	FL-PR00F RD 150 J 1/4W		
R93 .96			RD14AB2E102JTS	FL-PR00F RD 1.0K J 1/4W		
R99 .102			RD14AB2E471JTS	FL-PR00F RD 470 J 1/4W		
R105 .106			RD14AB2E332JTS	FL-PR00F RD 3.3K J 1/4W		
R107 .108			RD14AB2E392JTS	FL-PR00F RD 3.9K J 1/4W		
R109 .112			RD14AB2E911JTS	FL-PR00F RD 910 J 1/4W		
R113 .114			RD14AB2E122JTS	FL-PR00F RD 1.2K J 1/4W		
VR1 .2			R12-0109-05	TRIMMING POT. (470Ω) IDLE		
D1 .4			HZ55.1S(B2)	ZENER DIODE		
D1 .4			RDS.1JS(B2)	ZENER DIODE		
D5 .6			ISS133	DIODE		
D5 .6			ISS176	DIODE		
D11 .14			MA270(A)	VARISTOR		
D15 .16			ISS133	DIODE		
D15 .16			ISS176	DIODE		
D17 .18			E-202	CONSTANT CURRENT DIODE		
D19 .22			ISS133	DIODE		
D19 .22			ISS176	DIODE		
D23 .26			HZ55.1S(B2)	ZENER DIODE		
D23 .26			RDS.1JS(B2)	ZENER DIODE		
D27 .30			ISS131	DIODE		
D27 .30			ISS178	DIODE		
IC1			UPC1237HA	IC(POWER AMP)		
Q1 .2			UPA6BHA(L,M)	IC		
Q3 .6			2SC2320(E,F)	TRANSISTOR		
Q3 .6			2SC945(A)(Q,P)	TRANSISTOR		
Q7 .8			2SC2631(R,S)	TRANSISTOR		
Q9 .12			2SA1123(R,S)	TRANSISTOR		
Q13 .18			2SC2632(D,R,S)	TRANSISTOR		
Q21 .22			2SA1123(D,R,S)	TRANSISTOR		
Q23 .24			2SC2631(R,S)	TRANSISTOR		
Q25 .26			2SC2631(R,S)	TRANSISTOR		

PARTS LIST

* New Parts

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Telle ohne Parts No. werden nicht geliefert.

Ref. No. 參照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕	Re- marks 備考
Q27 .28			2SC3944A(Q,R)	TRANSISTOR		
Q29 .30			2SA1535A(Q,R)	TRANSISTOR		
Q31 .32			2SC2320(E,F)	TRANSISTOR		
Q31 .32			2SC945(A)(Q,P)	TRANSISTOR		
Q33 .34			2SA733(A)(Q,P)	TRANSISTOR		
Q33 .34			2SA999(E,F)	TRANSISTOR		
Q35 .36			2SC3940A(R,S)	TRANSISTOR		
Q37 .38			2SA1534A(R,S)	TRANSISTOR		
Q39 .40			2SA1123(R,S)	TRANSISTOR		
Q41 .44			2SC2631(R,S)	TRANSISTOR		
Q45 .46			2SA1123(R,S)	TRANSISTOR		
Q71			2SA992(F,E)	TRANSISTOR		
PRE AMPLIFIER UNIT (X08-2222-71)						
C1 .2			CF92FV1H221K	MF 220PF	K	
C3 .4			CF92FV1H121K	MF 120PF	K	
C5 .6			CEO4KW0J222M	ELECTRO 2200UF	6.3WV	
C7 .8			CK45FB1H102K	CERAMIC 1000PF	K	
C9 .10			C91-0790-05	FILM 0.039UF	J	
C11 .12			CQ93HP2A113G	MYLAR 0.011UF	G	
C13 .14			CQ93HP2A392J	MYLAR 3900PF	J	
C15 .16			C90-1332-05	NP-ELEC 10UF	25WV	
C17 .18			CF92FV1H103J	MF 0.010UF	J	
C19 .20			CF92FV1H104J	MF 0.10UF	J	
C21 .24			CF92FV1H472J	MF 4700PF	J	
C25 .32		*	CF92FV1H151K	MF 150PF	K	
C35 .40		*	CF92FV1H151K	MF 150PF	K	
C41 .42		*	CF92FV1H221K	MF 220PF	K	UMUE
C41 .42		*	CF92FV1H331K	MF 330PF	K	TE
C43 .44			CF92FV1H104J	MF 0.10UF	J	
C43 .44			CF92FV1H473J	MF 0.047UF	J	UMUE
C101			CEO4KW1E101M	ELECTRO 1000UF	25WV	
C102			CEO4KW1A470M	ELECTRO 47UF	10WV	
C103,104			CEO4KW1H2R2M	ELECTRO 2.2UF	50WV	
C105,106			CEO4KW1E221M	ELECTRO 220UF	25WV	
C107,108			CEO4KW1V102M	ELECTRO 1000UF	35WU	
C109			CEO4KW1A470M	ELECTRO 47UF	10WV	
C110			CC45FSL1H270J	CERAMIC 27PF	J	
C111-114			CF92FV1H103J	MF 0.010UF	J	
C115,116			CK45FE2H103P	CERAMIC 0.010UF	P	
C117,118			C91-0647-05	CERAMIC 0.01UF	P	
C119-121			CF92FV1H103J	MF 0.010UF	J	
C122-123			CEO4KW1H100M	ELECTRO 10UF	50WV	
C124,125			CF92FV1H105J	MF 1.0UF	J	
E2	2D		E13-0821-05	PHONE JACK (TUNER,PHONE)		
E7	1B		ED3-0093-05	AC OUTLET		UMUE
E1	2D		E13-0814-05	PHONE JACK (BP)(TAPE/DAT)		UMUE
E6	1C		E20-0830-05	SCREW TERMINAL BOARD		TE
E6	1C	*	E20-0831-05	SCREW TERMINAL BOARD		
100	1B		J13-0041-05	FUSE CLIP (06)		
100	1B		J13-0054-05	FUSE CLIP (05)		
-	-		J61-0033-05	WIRE BAND		
-	-		J61-0307-05	WIRE BAND		
L1 .2			L40-1011-47	SMALL FIXED INDUCTOR(100UH,K)		
L3 .4			L39-0080-15	PHASE-COMPENSATION COIL		

E: Scandinavia & Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

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U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

KA-D1100EX KA-D1100EX

PARTS LIST

* New Parts

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Telle ohne Parts No. werden nicht geliefert.

Ref. No.	Address	New Part No.	Description	Destination	Re-
参照番号	位置番	部品番号	部品名／規格	仕向番号	arks
L5 -7		L33-0328-05	CHOKE COIL		
R1 .2		RN14BK2C4752FTS	RN 47.5K F 1/6W		
R3 .4		RN14BK2C1000FTS	RN 100.0 F 1/6W		
R7 .8		RN14BK2C10R0FTS	RN 10.0 F 1/6W		
R9 .10		RN14BK2C1330FTS	RN 133.0 F 1/6W		
R11 .12		RN14BK2C11R0FTS	RN 11.0 F 1/6W		
R23 .24		RN14BK2C8252FTS	RN 82.5K F 1/6W		
R25 .26		RN14BK2C6811FTS	RN 6.8K F 1/6W		
R27 .28		RN14BK2C10R0FTS	RN 10.0 F 1/6W		
R35 .36		RD14AB2E4R7JTS	FL-PR00F RD 4.7 J 1/4W		
R37 .38	*	RN14BK2C1001FTS	RN 1.00K F 1/6W		
R39 .40		RS14DB3D100JTE	FL-PR00F RS 10 J 2W		
R43		RS14KB3A331JTE	FL-PR00F RS 330 J 1W		
R44		RS14DB3A331JTE	FL-PR00F RS 330 J 1W		
R101		RD14AB2E151JTS	FL-PR00F RD 150 J 1/4W		
R107,108		RD14AB2E101JTS	FL-PR00F RD 100 J 1/4W		
R111		RD14AB2E4R7JTS	FL-PR00F RD 4.7 J 1/4W		
R112		RD14GB2E4R7JTS	FL-PR00F RD 4.7 J 1/4W		
R113,114		RS14DB3A182JTE	FL-PR00F RS 1.8K J 1W		
R115,116		RS14DB3A681JTE	FL-PR00F RS 680 J 1W		
R117		RS14DB3D102JTE	FL-PR00F RS 1.0K J 2W		
R123,124		RD14AB2E222JTS	FL-PR00F RD 2.2K J 1/4W		
K1 .2		SS1-2045-05	MAGNETIC RELAY		
K3 .4		SS1-2075-05	MAGNETIC RELAY		
K5	2D	SS1-2074-05	MAGNETIC RELAY		
S1	2D	S90-0078-05	SLIDE SWITCH (DUAL REC OUT)		
S2		S40-6027-05	PUSH SWITCH (CARTRIDGE)		
S3	1B	S40-1073-05	PUSH SWITCH (POWER)		
S4	1B	S31-2115-05	SLIDE SWITCH (240V-120V)	UMUE	
D1 .2		HZ55.1S(B)	ZENER DIODE		
D1 .2		RDS.1JS(B)	ZENER DIODE		
D3		HZS16N(B)	ZENER DIODE		
D3		RD16ES(B)	ZENER DIODE		
D4		HZS5.1S(B2)	ZENER DIODE		
D4		RDS.1JS(B2)	ZENER DIODE		
D5		HZS8.2S(B2)	ZENER DIODE		
D5		RDB.2JS(B2)	ZENER DIODE		
D6		E-102	CONSTANT CURRENT DIODE		
D7		E-152	CONSTANT CURRENT DIODE		
D8 .9		HZS16N(B)	ZENER DIODE		
D8 .9		RD16ES(B)	ZENER DIODE		
D10 -13		DSM1A1	DIODE		
D14 -17		ISS131	DIODE		
D14 -17		ISS178	DIODE		
D18 .19		ISS133	DIODE		
D18 .19		ISS176	DIODE		
D20 -22		ISS131	DIODE		
D20 -22		ISS178	DIODE		
IC1		NJM5532D	IC(QP AMP X2)		
IC2		M5218P	IC(QP AMP X2)		
Q1 .4		2SK369(V)	FET		
Q1 .4		2SK371(V)	FET		
Q8 .10		2SK2520(V,F)	TRANSISTOR		

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参照番号	位置番	部品番号	部品名／規格	仕向番号	arks
Q5 -10		2SC945(A)(Q,P)	TRANSISTOR		
Q11		2SA1110(Q,R)	TRANSISTOR		
Q12		2SC2590(Q,R)	TRANSISTOR		
Q13 -15		2SC2320(E,F)	TRANSISTOR		
Q13 -15		2SC945(A)(Q,P)	TRANSISTOR		
AUDIO UNIT (X09-2562-71)					
C5 .6		CK45FB2H102K	CERAMIC	1000PF K	
C7 -10		CF92FV1H683J	MF	0.068UF J	
C11 .12		CC45FSL1H101J	CERAMIC	100PF J	
C11 .12		CD09FS1H101JZS	POLYSTY	100PF J	
C13 -20		CE04KW2A010M	ELECTRO	1.0UF 100WV	
C25 .28		CK45FE2H103P	CERAMIC	0.010UF P	
C29 .30		CE04KW2A220M	ELECTRO	22UF 100WV	
C31		CE04KW1A101M	ELECTRO	100UF 10WV	
C32 .33		CE04KW2A010M	ELECTRO	1.0UF 100WV	
C34 .35		CF92FV1H043-05	MF	1UF 100V	
C36 .37		CK45FE2H103J	CERAMIC	0.010UF J	
C38 .39		CE04KW1H010M	MF	1.0UF 50WV	
C40		CE04KW1V4R7M	ELECTRO	4.7UF 35WV	
C41 -48		CF92FV1H104J	MF	0.10UF J	
C49 .50		CC45FSL1H470J	CERAMIC	47PF J	
105	2D	E23-0149-05	TERMINAL		
E1	2B	E11-0174-05	PHONE JACK (PHONES)		
N	1C,1D	N09-1236-05	TAPPING SCREW (Ø3X16)		
CP1 .2		R90-0187-05	MULTI-COMP	0.22X2 K	
R1 .2		RN14BK2C4222F	RN	42.2K F	
R3 -10		RD14AB2E4R7JTS	FL-PR00F RD	4.7 J 1/4W	
R21 .22		RS14DB3D100JTE	FL-PR00F RS	10 J 2W	
R23 .24		RN14BK2C316D	RN	316.0 F 1/6W	
R27 .28		RS14DB3D331JTE	FL-PR00F RS	330 J 2W	
R29 .30		RS14DB3D151JTE	FL-PR00F RS	150 J 2W	
R31 .32		RS14DB3A151JTE	FL-PR00F RS	150 J 1W	
R37 .38		RD14AB2E100JTS	FL-PR00F RD	10 J 1/4W	
R39 .42		RD14AB2E101JTS	FL-PR00F RD	100 J 1/4W	
R43 .46		RD14AB2E100JTS	FL-PR00F RD	10 J 1/4W	
RS4		RS14DB3A271JTE	FL-PR00F RS	270 J 1W	
R57		RD14AB2E101JTS	FL-PR00F RD	100 J 1/4W	
R58		RD14AB2E391JTS	FL-PR00F RD	390 J 1/4W	
R60		RS14DB3A562JTE	FL-PR00F RS	5.6K J 1W	
R63	3C	RS14DB3A222JTE	FL-PR00F RS	2.2K J 1W	
VR1		R10-5021-05	POTENTIOMETER(100K)VOLUME CNT		
K1		S51-2075-05	MAGNETIC RELAY		
D1 .2		DSFB20*1	DIODE		
D3 .4		E-102	CONSTANT CURRENT DIODE		
D5 .6		HZSB.2S(B2)	ZENER DIODE		
D5 .6		RDB.2JS(B2)	ZENER DIODE		
D7		E-102	CONSTANT CURRENT DIODE		
D8		HZS8.2S(B2)	ZENER DIODE		
D8		RDB.2JS(B2)	ZENER DIODE		
D9 .10		HZS20S(B2)	ZENER DIODE		
D9 .10		RD20JS(B2)	ZENER DIODE		
D11 .12		ISS131	ZENER DIODE		
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KA-D1100EX

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Ref. No. 参照番号	Address 位置番号	New Parts 新規品番	Parts No. 部品番号	Description 部品名／規格	Desti- nation 仕向	Re- marks 備考
D11 ,12 IC1 ,2 IC3 ,4 Q1 ,2 Q3			ISS178 KAB02 TA2030 2SC2003(L,K) 2SC1845(F,E)	DIODE IC(DRIVER,POWER) IC(LB/HI SWITCHING) TRANSISTOR TRANSISTOR		
Q4 ,5 Q6 Q7 Q8 Q9			2SA954(L,K) 2SA992(F,E) 2SA1110(R,S) 2SC2632(O,R,S) 2SA999(E,F)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
TONE UNIT (X11-2462-71)						
109	2B		A33-0098-04	REFLECTOR		
D1 ,2 D3 -7 D8 -12 D13 -15 D16	3B 3B 3B,3C 3B 3C		B30-1012-05 B30-1206-05 B30-1012-05 B30-1206-05 B30-1012-05	LED(SLP-981C-50)DAT/TAPE SEL LED (INPUT SELECTOR LED(SLP-981C-50)NSR,DAT,CD LED (DIGITAL INPUT SELECTOR) LED(SLP-981C-50)PLL LOCK IND		
D17 D19 PL1 -3	3C		B30-1206-05 B30-1012-05 B30-1212-05	LED LED(SLP-981C-50)POWER LAMP(BLU) DIGITAL,ANALOG		
C3 ,4 C5 ,6 C7 -10 C11 ,12 C13 ,14			CF92FV1H154J CF92FV1H333J CF92FV1H101K CF92FV1H105J CEO4KW1H2R2M	MF 0.15UF J MF 0.033UF J MF 100PF K MF 1.0UF J ELECTRO 2.2UF 50WV		
C15 ,16 C17 -20 C21 -24 C25 -28 C29 ,30			CK45FB1H102K CF92FV1H393J CEO4KW1C220M CF92FV1H684J CC45FSL1H221J	CERAMIC 1000PF K MF 0.039UF J ELECTRO 22UF 16WV MF 0.68UF J CERAMIC 220PF J		
C31 ,32 C33 ,34 C39 -42 C43 ,44 C51 ,52			CF92FV1H393J CF92FV1H101K CF92FV1H334J C91-0168-05 C90-1335-05	MF 0.039UF J MF 100PF K MF 0.33UF J POLYSTY 15PF K NP-ELEC 4.7UF 50WV	E	
C53 ,54 C55			CF92FV1H105J CF92FV1H103J	MF 1.0UF J MF 0.010UF J	E	
110	2B		J11-0111-05 J61-0039-05	CLAMPER WIRE BAND		
L1 ,2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
R51 R59 R60 R61 R62		*	RD14GB2E102JTS RS14KB3D181JTE RS14KB3D182JTE RS14KB3D272JTE RS14KB3D181JTE	FL-PRQOF RD 1.0K J 1/4W FL-PRQOF RS 180 J 2W FL-PRQOF RS 1.8K J 2W FL-PRQOF RS 2.7K J 2W FL-PRQOF RS 180 J 2W		
VR1 ,2 VR2 ,3	3C 3B		RO6-5166-05 RO6-2018-05	POTENTIOMETER (BALANCE)200KM POTENTIOMETER (BASS,TREBLE)5KB		
S1 S2 S3 ,5 S4 S6	3B 3B 3B 3B,3C 3C		S42-6022-05 S42-3107-05 S42-2160-05 S40-2351-05 S42-3106-05	MULTIPLE PUSH SWITCH(SELECTOR) MULTIPLE PUSH SWITCH(DAT/TAPE) MULTIPLE PUSH SWITCH(DAT,CD) PUSH SWITCH (MODE,SUBSONIC) MULTIPLE PUSH SWITCH(DIGI,ANLG)		

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S7 ,8	3C	*	S40-4074-05	PUSH SWITCH(LINE STRAIGHT,MUTE)		
S9	3C	*	S40-2366-05	PUSH SWITCH (LOUDNESS)		
S10 ,11	3B		S40-2351-05	PUSH SWITCH (TURNUVER)		
S12	3B		S42-2161-05	MULTIPLE PUSH SWITCH(SPEAKER)		
D18			ISS131	DIODE		
D18			ISS178	DIODE		
D20 -27			ISS133	DIODE		
D20 -27			ISS176	DIODE		
D28			HZS11N(B)	ZENER DIODE		
D28			RD11ES(B)	ZENER DIODE		
IC1			NJM2041D-D	IC(8P AMP X2)		
Q1 -3			2SC2320(E,F)	TRANSISTOR		
Q1 -3			2SC945(A)(D,P)	TRANSISTOR		
Q4			2SA999(E,F)	TRANSISTOR		
L1 -5			L33-0329-05	CHOKER COIL		

PROCESSOR UNIT (X32-1202-71)

C1 ,2			C009FS1H471JZS	POLYSTY	470PF	J	
C3 ,4			CQ09FS1H151JZS	POLYSTY	150PF	J	
C5 ,6			CQ93HP2A1626	MYLAR	1600PF	G	
C7 ,10			CQ93HP2A2426	MYLAR	2400PF	G	
C11 ,12			C91-0170-05	POLYSTY	22PF	K	
C13 ,14			CQ93HP2A1826	MYLAR	1800PF	G	
C15 ,16			CQ93HP2A3326	MYLAR	3300PF	G	
C17 ,18			CQ93HP2A2036	MYLAR	0.020UF	G	
C19 ,20			C91-0175-05	POLYSTY	56PF	K	
C21 ,22			C90-1334-05	NP-ELEC	47UF	10WV	
C23 ,26			C91-0170-05	POLYSTY	22PF	K	
C27 ,28			CQ93HP2A2426	MYLAR	2400PF	G	
C29 ,30			C91-0170-05	POLYSTY	22PF	K	
C31 ,32			CQ93HP2A2426	MYLAR	2400PF	G	
C33 ,34			CQ93HP2A102J	MYLAR	1000PF	J	
C41 ,44			CK45FF1H103Z	CERAMIC	0.010UF	Z	
C41 ,44			CK45FF1H103Z	CERAMIC	0.010UF	Z	
C45			CK45FF1H102K	CERAMIC	1000PF	K	
C46 ,49			CF92FV1H102K	MF	0.010UF	J	
C50 ,53			CE04KW1C330M	ELECTRQ	33UF	16WV	
C54 ,55			CE04KWOJ471M	ELECTRQ	470UF	6.3WV	
C56 ,57			CE04KWOJ471M	ELECTRQ	470UF	6.3WV	
C58 ,59			CE04KW1A101M	ELECTRQ	100UF	10WV	
C60 ,61			CE04KW1A470M	ELECTRQ	47UF	10WV	
C62			CE04KW1C330M	ELECTRQ	33UF	16WV	
C63			CE04KW1A101M	ELECTRQ	100UF	10WV	
C64 ,71			CE04KW1C330M	ELECTRQ	33UF	16WV	
C72 ,73			CE04KWOJ471M	ELECTRQ	470UF	6.3WV	
C74			CE04KWOJ331M	ELECTRQ	330UF	6.3WV	
C76 ,77			CE04KW1C101M	ELECTRQ	100UF	16WV	
C78 ,79			CE04KW1C330M	ELECTRQ	33UF	16WV	
C80 ,81			CE04KW1A470M	ELECTRQ	47UF	10WV	
C82 ,83			CE04KWOJ471M	ELECTRQ	470UF	6.3WV	
C84 ,85			CC45FSL1H080D	CERAMIC	8.0PF	D	
C86 ,87			CF92FV1H104J	MF	0.10UF	J	
C88			C90-1350-05	NP-ELEC	2.2UF	50WV	
CD0			CE04KW1A101M	ELECTRQ	47UF	10WV	

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C90			CF92FV1H184J	MF	0.18UF	J
C91 ,92			CF92FV1H102J	MF	1000PF	J
C93 ,94			CC45FSL1H151J	CERAMIC	150PF	J
C95 ,96			CQ09FS1H101JZS	POLYSTY	100PF	J
C97			CF92FV1H822J	MF	8200PF	J
C98			CEO4KW1A101M	ELECTRQ	100UF	10WV
C99 -106			CK45FF1H103Z	CERAMIC	0.010UF	Z
C107 -110			CEO4KW1E222M	ELECTRQ	2200UF	25WV
C111 ,112			CEO4KW1E221M	ELECTRQ	220UF	25WV
C113			CEO4KW1A101M	ELECTRQ	100UF	10WV
C114 ,115			CEO4KW1C330M	ELECTRQ	33UF	16WV
C116 ,117			CEO4KW1C332M	ELECTRQ	3300UF	16WV
C119 ,120			CEO4KW1C332M	ELECTRQ	3300UF	16WV
C121 ,122			CK45FF1H103Z	CERAMIC	0.010UF	Z
C124			C91-0733-05	CERAMIC	33PF	J
105	1B,1C		E23-0149-05		TERMINAL	
E1	1C		E13-0484-05		PHONE JACK (COAXIAL)	
L1 ,2		*	L40-4701-16		SMALL FIXED INDUCTOR(47UH,K)	
L3			L39-0142-05		MATCHING COIL	
L4 ,5			L39-0154-05		VARIABLE INDUCTOR	
L6 ,9			L40-1021-11		SMALL FIXED INDUCTOR(1.0MH,K)	
L10 ,15			L33-0328-05		CHOKER COIL	
L16 ,17			L40-1021-11		SMALL FIXED INDUCTOR(1.0MH,K)	
L18 ,19			L40-1092-16		SMALL FIXED INDUCTOR(1UH,M)	
X1			L77-1130-05		CRYSTAL RESONATOR	
X2			L77-1129-05		CRYSTAL RESONATOR	
CP1			R90-0233-05		MULTI-COMP	10KX4 J 1/6W
R1 ,2			RN14BK2C9092FTS		RN	90.9K F 1/6W
R3 ,4			RN14BK2C1963FTS		RN	196K F 1/6W
R7 ,8			RN14BK2C1621FTS		RN	1.62K F 1/6W
R9 ,10			RN14BK2C1002FTS		RN	10.0K F 1/6W
R11 ,12			RN14BK2C1001FTS		RN	1.00K F 1/6W
R13 ,16			RN14BK2C6811FTS		RN	6.81K F 1/6W
R17 ,20			RN14BK2C1002FTS		RN	10.0K F 1/6W
R21 ,22			RN14BK2C1003FTS		RN	100K F 1/6W
R23 ,24			RN14BK2C9092FTS		RN	90.9K F 1/6W
R25 ,26			RN14BK2C1961FTS		RN	1.96K F 1/6W
R27 ,28		*	RN14BK2C6341FTS		RN	6.34K F 1/6W
R29 ,30			RN14BK2C1961FTS		RN	1.96K F 1/6W
R31 ,42		*	RN14BK2C3241FTS		RN	3.24K F 1/6W
R43 ,44			RN14BK2C9092FTS		RN	90.9K F 1/6W
R45 ,46			RN14BK2C1621FTS		RN	1.62K F 1/6W
R47 ,48		*	RN14BK2C28250FTS		RN	825.0 F 1/6W
R49 ,50			RN14BK2C1001FTS		RN	1.00K F 1/6W
R51 ,52			RN14BK2C1211FTS		RN	1.21K F 1/6W
R53 ,54			RN14BK2C1000FTS		RN	10.0 F 1/6W
R55 ,56			RN14BK2C1003FTS		RN	100K F 1/6W
R59 ,98			RN14BK2C1003FTS		RN	100K F 1/6W
R99 ,102			RN14BK2C1472FTS		RN	14.7K F 1/6W
R103 ,104			RD14GB2E220JTS		FL-PR00F RD 22	J 1/4W
VR1 ,2			R12-1100-05		TRIMMING POT. (2.2KB)	OUT PUT
VR3 ,4			R12-3147-05		TRIMMING POT. (47KB)	DISTORTION
VR5 ,6		*	R12-1099-05		TRIMMING POT. (1KB)	DISTORTION

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K1 ,2 S1	1C	S51-2074-05 S51-2095-05	MAGNETIC RELAY SLIDE SWITCH (DAC)		
PH1		T95-0101-05	OPTO ISOLATOR		
D1 -24 D1 -24 D27 -29 D27 -29 D32		ISS133 ISS176 ISS133 ISS176 HZ55.1S(B2)	DIODE DIODE DIODE DIODE ZENER DIODE		
D32 D33 -40 D41 ,42 D43 D43		RD5.1JS(B2) DSM1A1 KV1310-1 HZ52.7N(B2) RD2.7ES(B2)	ZENER DIODE DIODE VARIABLE CAPACITANCE DIODE ZENER DIODE ZENER DIODE		
D44 -57 D44 -57 IC1 ,2 IC3 -10 IC21,22		ISS133 ISS176 PCM56P-K NJM5532D-D TC74HCU04F	DIODE DIODE IC(DA CONVERTER) IC(OP AMP X2) IC(HEX INVERTER)		
IC23,24 IC25 IC26 IC27 IC28		TC74HC153F SM5804D-T TC176005AF-0053 MS223P MSF78M05L	IC(4CH MPX) IC(DIGITAL FILTER) IC(VCXB) IC(OP AMP X2) IC(VOLTAGE REGULATOR/ +5V)		
IC29 IC30 IC31 IC32 IC33		MSF79M05L MSF78M06L MSF79M06L P005R04 MS220P	IC(VOLTAGE REGULATOR/ -5V) IC(VOLTAGE REGULATOR/ +6V) IC(VOLTAGE REGULATOR/ -6V) IC(VOLTAGE REGULATOR/ +5V) IC(OP AMP X2)		
IC34 IC35 01 -4 05 05		TC74HCU04F M51951ASL 2SC1923(R,8) 2SC2320(E,F) 2SC945(A)(O,P)	IC(HEX INVERTER) IC(SYSTEM RESET) TRANSISTOR TRANSISTOR TRANSISTOR		
06 07 08 010 -13		2SD1266(O,P) 2SB941(O,P) 2SK170(BL,V) DTG114YFF	TRANSISTOR TRANSISTOR FET DIGITAL TRANSISTOR		
A1 A2 ,3	1C	W02-0784-05 W02-0774-05	ELECTRIC CIRCUIT MODULE(REC) ELECTRIC CIRCUIT MODULE(PLA,CD)		

DIGITAL I/O UNIT (X88-1010-00)

C1		CC45FSL1H270J	CERAMIC	2PF	J		
C2		CF92FV1H273J	MF	0.027UF	J		
C3		CF92FV1H272J	MF	2700PF	J		
C4		CF92FV1H683J	MF	0.068UF	J		
C5		C90-1602-05	NP-ELEC	10UF	10WV		
C6		CF92FV1H103J	MF	0.010UF	J		
C7		CE04JW1H010M	ELECTRO	1.0UF	50WV		
CB -10		CE04JW1A101M	ELECTRO	100UF	10WV		
C11 -14		CK45FF1H103Z	CERAMIC	0.010UF	Z		
C15		CC45FSL1H100D	CERAMIC	10PF	D		
L1 ,2		L92-DD1B-05	FERRITE CORE				
R4 ,5		RD14AB2E100JTS	FL-PR00F RD 10	J 1/4W			

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D1		1SS237(1)	DIODE		
D2 -10		1SS133	DIODE		
D2 -10		1SS176	DIODE		
IC1		TC176014AF-0073	IC(DIGITAL IN)		
IC2		SN74LS624N	IC(VC8)		
IC3		MS223P	IC(OP AMP X2)		
IC4		TC74HCU04F	IC(HEX INVERTER)		
IC5		TC74HC123F	IC(DUAL MONO MULTI)		

COMPOUND ASS'Y UNIT (X90-2672-71)

C	1B	N09-0301-05	TAPTRITE SCREW (Ø3X8)		

E: Scandinavia & Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE : AAFES(Europe) X: Australia

△ indicates safety critical components.

SPECIFICATIONS

< Power Output >

125 watts per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.004% total harmonic distortion

Maximum Continuous Power Output (DIN) 1 kHz at 4 ohms	190 W
Maximum Continuous Power Output (DIN) 1 kHz at 8 ohms	150 W
Maximum Continuous Power Output (IEC/NF) from 63 Hz to 12,500 Hz, 0.7%	
Total Harmonic Distortion at 8 ohms	150 W + 150 W
Dynamic Power	150 W per channel at 8 ohms 270 W per channel at 4 ohms 325 W per channel at 2 ohms

Total Harmonic Distortion

LINE input to SPEAKER output	
(20 Hz - 20,000 Hz)	: 0.004% at rated output power at 8 ohms
(20 Hz - 20,000 Hz)	: 0.003% at 1/2 rated output power at 8 ohms
(1 kHz)	: 0.0006% at rated output power at 8 ohms
Intermodulation Distortion (60 Hz:7 kHz = 4:1)	: 0.004% at rated output power

Frequency Response

LINE to SPEAKER	: 1 Hz to 180 kHz/+0 dB, -3 dB
PHONO "RIAA" Response PHONO	: 20 Hz to 20 kHz ±0.3 dB

Signal to Noise Ratio (IHF-A) (IHF'66)

PHONO (MM)	: 87 dB
PHONO (MC)	: 70 dB (0.25 mV)
TUNER/AUX/TAPE	: 108 dB

Signal to Noise Ratio (IHF-A)

PHONO (MM)	: 78 dB
PHONO (MC)	: 74 dB
TUNER/AUX/TAPE	: 82 dB

Signal to Noise Ratio Unweighted: 50 mW input (DIN)

PHONO (MM)	: 58 dB
TAPE/AUX/TUNER	: 60 dB
Power Bandwidth	: 5 Hz to 50 kHz at 0.04% T.H.D., 8 ohms

Subsonic Filter

Subsonic Filter	: 6 dB/Oct. at 18 Hz
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Tone Control

BASS (at 200 Hz)	: ± 10 dB
(at 400 Hz)	: ± 10 dB
TREBLE (at 3 kHz)	: ± 10 dB
(at 6 kHz)	: ± 10 dB

Loudness Control (at -30 dB Volume Level)

Damping Factor	: 9 dB at 100 Hz
	: 1,000 (50 Hz at 8 ohms)

Input Sensitivity/Impedance

PHONO (MM)	: 2.5 mV/ 47 kohms
PHONO (MC)	: 0.2 mV/100 ohms
TUNER/AUX/TAPE	: 150 mV/ 47 kohms

Phono Maximum Input Level (PHONO to TAPE REC)

(MM)	: 200 mV, at 1 kHz
(MC)	: 15 mV, at 1 kHz

Output Level/Impedance

TAPE REC (Pin)	: 150 mV/330 ohms
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< D/A Converter Section >

Input Sampling Frequencies	: 32 kHz/44.1 kHz/48 kHz
Signal to Noise Ratio	: 108 dB

Total Harmonic Distortion

Channel Separation	: 0.0025% at 1 kHz
Digital Inputs	: Optical: -15 ~ -25 dBm Coaxial: 0.5 Vp-p/75 ohms DAT Monitor 0.5 Vp-p/75 ohms

Digital Output

	: Optical: -15 ~ -25 dBm Coaxial: 0.5 Vp-p/75 ohms
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< General >

Power Consumption	: 350 W
Dimensions	: W 440 mm (17-5/16") H 171 mm (6-3/4") D 441 mm (17-3/8")

Weight (Net)

< Accessories >	: 19.5 kg (42.9 lb)
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RCA pin-plug cord

Optical fiber cable	: 1
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62 Note:

KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.